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DRYLAND AGRICULTURE

WATER QUALITY MANAGEMENT PLAN

APPENDIX III

SECTION 208, P.L.95-217

September 1979

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Dryland agriculture

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98192107 Appendix III,

DRYLAND AGRICULTURE
WATER QUALITY MANAGEMENT PLAN
APPENDIX III
SECTION 208, P.L. 95-217

September 1979
D.O.E. 79-5d-(2)

Department of Ecology
Office of Water Programs
Water Quality Planning
Olympia, Washington 98504

and

Washington State
Conservation Commission

*This project has been financed in
part with federal funds from the
Environmental Protection Agency
under Grant No. P00011010.*

208 Dryland Technical Advisory Committee
(DTAC) Certification

This certifies that county Best Management Practices affixed as appendices to the State 208 Dryland Agriculture Water Quality Management Plan meet standards of technical adequacy and meet objectives for progressing toward state and federal water quality goals.

Donald W. Nanson
Donald W. Nanson, DTAC Chairman

March 13, 1979
Date

Adams County

WATER QUALITY COMMITTEE

Public Involvement

Water Quality Committee:

How was the committee established: This water quality committee was elected by the Adams, Warden, and Othello conservation districts to obtain representation from all the dryland areas of Adams County. The people showed interest through attendance at informational meetings and conservation district supervisor contacts.

List the committee members and show organization and/or areas represented:

See list attached.

Informational Program:

Personal Phone Calls: 300 phone calls by water quality committee members to local operators

News Releases:

Number -- 3

Newspapers -- Adams County Journal - Ritzville
Spokane Daily Chronicle - Spokane

Radio and TV Coverage: KHQ - Spokane

Direct Mail, Letters, and Newsletters:

January 1977 - 1,800 - to all landowners and operators,
Adams County

March 1977 - 500 - to all operators, dryland portion of
Adams County

June 1977 - 1,800 - to all landowners and operators,
Adams County

Meetings:

Number and Attendance: 3 - January 10 and 11 - 150 people
attended

Public Awareness - 1. Wheat Growers meetings - 3
Citizen Input: 2. Conservation District Annual Meeting - 1
3. Grange meeting - 5
4. Cattlemen's meetings - 3

Location of Citizen Input Meetings: Washtucna, Lind, and Ritzville

Best Management Practices Development:

Procedure used - questionnaire - committee discussion

Worksheets - studied Whitman County - not used

Questionnaire - 500 questionnaires sent - 194 returned

Community meetings - 5 - 120 people attended

Public Review of the BMP:

Method used: BMP were reviewed by water quality committee, landowners, and land operators.

1. BMP reviewed by water quality committee twice - 20 people.
2. BMP were sent to all landowners and operators in the county (approximately 1,800). There is no way to know how many people reviewed them, but there were several phone calls and personal contacts made to committee members.

Adams County
WATER QUALITY COMMITTEE

ASSIGNED AREAS OF RESPONSIBILITY

| <u>AREAS</u> | <u>MEMBERS</u> |
|------------------|---|
| Schrag | M. Klasler Henry Franz Dennis Swinger |
| Ritzville | Donald Wellsandt Walt Sauer Paul Hoeful |
| Keystone | Harold Undeberg Gilbert Goodwater Garrett Templin |
| Marengo | Williard Hennings George Kubik |
| Lind | Rueben Fode Doug Wahl |
| Michigan Prairie | Jack Eden Curt Gering Dick Lawton |
| Washtucna | Harold Clinesmith Bob Clinesmith Jerry Snyder |
| Warden | Don Underhill Roger Walkins |

Adams County
WATER QUALITY COMMITTEE
Dryland
Best Management Practices

County: Adams

Major Soil Series:

Walla Walla silt loam, Ritzville silt loam, Shano silt loam

Associated Soil Series:

Benge silt loam, Burke silt loam, Farrell very fine sandy loam,
Willis silt loam

Major Problems:

In much of Adams County, wind is as much of an erosion hazard as is water. Practices to date have assisted in controlling both wind and water erosion. The major water erosion problem is caused by excess tillage.

Best Management Practices:

A. Alternative Cropping Sequences

1. Summer fallow - cereal grain
2. Recrop - In areas of 12-inch precipitation or more and in years of adequate moisture.

B. Cultural Practices

1. Fall tillage with subsurface implements (most Ritzville and Walla Walla silt loam soils).
2. Early fall seeding - preferably by September 15.
3. Maintain a stubble mulch using a variety of implements or combination of implements in several different sequences of operations.

B1. End Product

1. Stubble mulch - 20 percent of gross amount of crop residues raised remaining after fall seeding.
2. Reduce crop residues only sufficiently to allow for deep furrow seeding.

3. Establish a stubble mulch to maintain moisture for early fall germination of wheat.
 4. Control weeds on summer fallow.
- C. Supporting Practices that may be used.
1. Seeding drainage ways early.
 2. Seeding steep hillsides early.
 3. Straw relocation - mechanically moving straw from heavy areas to light areas.
 4. Cross slope farming - farming operation done across the general slope.
 5. Divided slope farming - dividing a slope into crop and summer fallow.
 6. Installation of drop structures.
 7. Installation of sediment dams.
 8. Grass waterways.
 9. Terraces, strip cropping, wind breaks, and retirement of steep hillsides and shallow areas.

These best management practices are designed to be effective only during average conditions and not during abnormal conditions. Nor does this affect operators who experiment in order to improve their agronomic position.

Adams County
WATER QUALITY COMMITTEE

Attach a map of physiographic areas and/or precipitation zones.

See attached.

Total Number of Producers: Approximately 500

Total Acres Dry Cropland: 690,000 acres

Predicted Effect of BMP:

| <u>Land Needing:</u> | <u>Acres</u> | <u>Average Predicted Soil Loss</u> | | | |
|----------------------|--------------|------------------------------------|--------------|-----------------|--------------|
| | | <u>Without BMP</u> | | <u>With BMP</u> | |
| | | <u>Per Acre</u> | <u>Total</u> | <u>Per Acre</u> | <u>Total</u> |
| Subsurface tillage | 15,000 | 3.8 | 57,000 | 2.2 | 33,000 |
| Stubble mulch | 10,000 | 3.8 | 38,000 | 2.2 | 22,000 |
| Early seeding | 7,000 | 3.8 | 26,600 | 2.2 | 15,400 |

| <u>Existing Supporting Practices</u> | <u>Acres Now Protected</u> |
|--------------------------------------|----------------------------|
| Contour farming | 92,000 Acres |
| Strip Cropping (wind) | 717 Acres |
| Terraces | 42,195 Feet |
| Cropland Adequately Protected | 250,000 Acres |
| Grassed Waterways | 500 Acres |

Asotin County

WATER QUALITY COMMITTEE

Public Involvement

Water Quality Committee:

How was the committee established: The Asotin County Conservation District Board of Supervisors contacted all appropriate organizations, groups, and individuals and solicited their participation. Three public meetings were held to explain the committee's purpose and it was formally organized on April 14.

List the committee members and show organization and/or areas represented:

- | | |
|---|--|
| 1. ASCS Committee Dean Forgey Anatone, WA 99401 | 10. Bureau of Land Management Baker District Office P. O. Box 591 Baker, OR 97814 |
| 2. Cattlemen's Association Frank Johnson Anatone, WA 99401 | 11. Clarkston Chamber of Commerce c/o Dave Justice 749 - 6th Street Clarkston, WA 99403 |
| 3. Pomona Grange Ernest Taplin Anatone, WA 99401 | 12. Asotin Chamber of Commerce c/o Kent Jones Asotin, WA 99402 |
| 4. Extension Service Doug Warnock Asotin, WA 99402 | 13. Anatone Sportsman Assn. Harold Floch Anatone, WA 99401 |
| 5. League of Women Voters Pearl Coon 1310 - 10th Street Clarkston, WA 99403 | 14. Asotin County Cowbells Judy Fredd Asotin, WA 99402 |
| 6. John & Gina Rollins 1444 Highland Clarkston, WA 99403 | 15. Washington Water Power Co. c/o Harley Lyons P. O. Box 71 Clarkston, WA 99403 |
| 7. Chief Joseph Wildlife & Rec. Area Rodger Holland Route 4 Asotin, WA 99402 | 16. Lewiston Tribune c/o George Shreve 505 "C" Street Lewiston, ID 83501 |
| 8. U.S. Forest Service Dale Bowdish, Ranger Pomeroy, WA 99347 | 17. Wheat Growers Assn. c/o Gerald Hodson Route 2 Asotin, WA 99402 |
| 9. Department of Natural Resources Don Palmer Dayton, WA 99328 | |

Public Involvement con't.

Informational Program:

Personal Phone Calls: Random phone calls were made by CD supervisors and SCS personnel to ascertain if invitational letters had been received.

News Releases:

| | | |
|------------|---|---------|
| Number | 4 | |
| Newspapers | 2 | Total 8 |

Radio and TV Coverage:

| | |
|-------|---|
| Radio | 4 |
| TV | 2 |

Direct Mail:

| | |
|-------------|-----|
| Letters | 50 |
| Newsletters | 320 |

Meetings:

Number and attendance - 104 -- 3 meetings

Public Awareness -- Newsletters mailed:

| | |
|-----------------|----|
| Anatone area | 79 |
| Cloverland area | 27 |
| Peola area | 26 |

News articles and radio announcements for each meeting.

Citizen input -

| | |
|--------------------------|---------------|
| Three community meetings | - 56 attended |
| Two county meetings | - 32 attended |

Location of citizen input meetings:

| <u>Community</u> | <u>County</u> |
|------------------------------|--------------------------------|
| Clarkston Hghts. Grange Hall | Clarkston Savings & Loan Bldg. |
| Cloverland Church | Asotin County Courthouse |
| Anatone Community Building | |

Public Involvement con't.

Best Management Practices Development: Initial input obtained through community meetings at which ideas were put on an easel board. This was followed by drafting of an initial plan by a steering committee composed of representatives from each community. This draft was mailed to all producers and members of the county water quality committee prior to the countywide review held on September 29. It was formally adopted on September 29.

Public Review of the BMP:

Method used: Mailed out proposed plan to all producers.

Public review and discussion was held at a meeting in Clarkston on September 29, 1977.

Number of people reviewing: 235

Asotin County

WATER QUALITY COMMITTEE

Best Management Practices

Precipitation: 12 to 30 inches

Associated Soil Series: (see attached map)

Major Problems:

Soil movement by water, shallow soils (18" to 24" deep)
Fast snow melt or rain on frozen ground. Heavy summer storms,
creating flood conditions.

Best Management Practices:

A. Alternative Cropping Sequences

1. Grain-fallow (recommended where precipitation is under 16").
2. Annual cropping or crop grown each year (where adequate moisture is available).
3. Winter wheat - spring grain (2-5 years), fallow, 1 year.
4. Permanent seeding of alfalfa and/or grass for steep hillsides and critical areas.
5. Alfalfa and grass in rotation with grain for soil improvement.
6. Grass for seed production in rotation with grain.

B. Cultural Practices

1. Limit fall tillage to one operation when a spring crop is to be raised.
2. Reduce number of tillage operations to maintain cloddiness, especially where moldboard plow is used.
3. Contour or cross slope farming. Especially the fall seeding operation.
4. Leave land to be fallowed in stubble over winter. If frozen ground is a problem, limit fall tillage to chiseling.
5. Early fall seeding on fallow. September 15, if possible. (Taking into consideration weather conditions or other things beyond operator's control.)

C. End Product

1. Stubble mulch - Keep approximately 20 percent of residue produced on or near surface by seeding time.
2. No tillage - Chemical fallow seeding into stubble (to be used on an experimental basis).

D. Recommended Optional Practices

1. Stripcropping and/or divided slope cropping.
 2. Gradient terraces - including maintenance.
 3. Grass waterways - including maintenance.
 4. Silt basins where possible - including maintenance.
- * Practices 1 through 4 are to follow SCS guidelines.

E. Planned Grazing Systems

1. Implementation of proper grazing
 - a. Stock trails.
 - b. Cross fencing for rotational grazing.
 - c. Development and maintenance of water sources.
 - d. Salt distribution to modify existing grazing patterns.
 - e. Deferred grazing where needed.
2. Range Improvement
 - a. Control undesirable plants.
 - b. Control all terrain vehicle use where erosion hazards could be created.
 - c. Reseed more productive sites to perennial grasses.
 - d. Seed out or reseed range areas where protective vegetation is needed.

F. Burning Policy

1. Burning should be preceded by a primary rough tillage and be limited to small areas where necessary residue reduction would otherwise lead to excessive soil pulverization. Grass seed production fields are exempt from this policy.

Asotin County
WATER QUALITY COMMITTEE

A map is attached of physiographic areas and/or precipitation zones.

Total Number of Producers: 175

Total Acres of Dry Cropland: 101,143

Predicted Effect of BMP (without optional practices):

| <u>Composite of BMP Alternatives for Each County Area</u> | <u>Acreage Needing BMP</u> | <u>Percentage Improvement</u> |
|---|--------------------------------|-----------------------------------|
| Grain-stubble Mulch-fallow | 35,000 acres | 31% |
| Grain recrop (above 16" precip.) | 1,500 acres | 44% |

| <u>Existing Supporting Practices</u> | <u>Acres Now Protected</u> |
|--------------------------------------|----------------------------|
| As listed previously in "C" | 66,143 |

Columbia County
WATER MANAGEMENT COMMITTEE

Public Involvement

Water Management Committee:

How the committee was established: The committee was established by the Columbia Conservation District Board of Supervisors on December 8, 1976. Original members included the supervisors and associate supervisors of the Columbia Conservation District. The Chairman of the committee is the Chairman of the Columbia Conservation District Board of Supervisors. Original members include:

Eric Thorn, Chairman
Robert Hutchens
William Eslick
Jay Penner
William Broughton
Roy Eslick
Jack Lacy
Lester Eaton, Jr.
Rod Kimball
Harold "Dave" Seibel

Advisors are:

Duane Scott, Soil Conservation Service
Art Sunderland, Extension Agent

Informational Program:

Newspaper articles in Dayton Chronicle and Walla Walla Union-Bulletin.

Meetings: Mini-sessions were conducted for farmers to provide their inputs into management systems which would be economically feasible and socially acceptable and would result in the improvement of water quality.

| <u>Date</u> | <u>At Home Of:</u> | <u>Farmers</u> | <u>Number Present</u> <u>Agency</u> |
|-------------|--------------------|----------------|--|
| 1/14/77 | Marvin Nascimento | 5 | 2 |
| 1/14 | Jay Penner | 6 | 2 |
| 1/17 | Hallie Fletcher | 5 | 2 |
| 1/17 | Jerome Hovrud | 7 | 2 |
| 1/18 | Merle Bickelhaupt | 8 | 2 |
| 1/19 | Bill Payne | 4 | 2 |
| 1/19 | Bruce Abbey | 6 | 2 |
| 1/24 | Ralph Smith | 6 | 2 |
| 1/24 | Dick Jones | 3 | 2 |
| 1/28 | Ron Kenney | 5 | 3 |
| 1/28 | Albert Laib | 9 | 2 |

| | | | |
|------|-------------------|-----|---|
| 1/31 | Pat Donohue | 7 | 2 |
| 1/31 | Ben Dickinson | 9 | 2 |
| 2/1 | Jim Turner | 5 | 1 |
| 2/1 | Merwin Neace | 6 | 1 |
| 2/2 | Bill Broughton | 15 | 2 |
| 2/2 | Leo Startin | 5 | 2 |
| 2/9 | Carl Nordheim | 7 | 4 |
| 2/9 | Roy Eslick | 9 | 4 |
| 2/11 | George Canright | 8 | 2 |
| 2/11 | Bob Warren | 7 | 4 |
| 2/14 | Wilfred Thorn | 8 | 4 |
| 2/14 | Dayle Rainwater | 13 | 5 |
| 2/15 | Lester Eaton, Jr. | 3 | 2 |
| | Total | 166 | |

Best Management Practices Development:

Twenty-four mini-sessions were held in the county. Questionnaires were handed out at each mini-session, filled out, and returned at the close of the session. One hundred and fifty-seven questionnaires were turned in for tabulation. Questionnaires plus written happenings at each mini-session (by Art Sunderland, Duane Scott, or both) were used by the Water Management Practices. Procedures used:

- X Workshops (mini-sessions)
- X Questionnaires
- X Public hearings

Public Review of the Best Management Practices:

Method Used: The first draft of the Best Management Practices was printed in both the Dayton Chronicle and the Walla Walla Union-Bulletin. Two hundred and eighty copies of proposed Best Management Practices were mailed out to landowners and operators in Columbia County.

Four public hearings were held on the first draft of Best Management Practices. These meetings were open to the general public, and notice of the hearings was published in the Dayton Chronicle, May 5th and 12th. Hearing dates were as follows:

| | |
|--------------|-----------------------------|
| May 16, 1977 | 10-to-14-inch rainfall zone |
| May 19, 1977 | 15-to-17-inch rainfall zone |
| May 24, 1977 | 18-to-21-inch rainfall zone |
| May 25, 1977 | 21-inch + rainfall zone |

All hearings were held in the conference room of the U.S. Post Office Building in Dayton, Washington.

An article about the hearings was published on May 19th in the Dayton Chronicle.

After the rainfall zone hearings were held, a second draft of Best Management Practices was written. The second draft was mailed to 280 landowners and operators in Columbia County. Proposed Best Management Practices were contained in an article in the Dayton Chronicle on June 9, 1977.

A final hearing was held on June 16, 1977. Notices of the hearing were published in the Dayton Chronicle on June 2 and 9, 1977.

Number of people reviewing: Sixty-five people attended the four hearings on the first draft of the Best Management Practices. Eighteen people attended the final hearing on June 16, 1977.

Best Management Practices

Rainfall - 10 to 14 inches

Major Soil Series: Ritzville silt loam and Walla Walla silt loam.

Associated Soil Series: Ellisforde, Esquatzel, Farrel, and Kuhl.

Major Problems: Annual precipitation in this area is limited; this results in each producer using summer fallow on at least one-half of the land. Major soil erosion problems occur during winter storms as a result of the disappearance of straw residue and the limited amount of plant cover on the surface of the seeded wheat land. Excessive moisture, rain, and/or snowmelt occurring while the soil is frozen, causes most of the erosion. Lesser amounts of erosion occur during cloudbursts in the summer on steep slopes, shallow soils, and long slopes. Exposed subsoil is another factor contributing to the loss of soil.

A. Alternative Cropping Sequences

1. Grain and summer fallow.

B. Alternative Tillage Practices

1. Stubble mulch, using tillage equipment that will maintain 20 percent of original residues on the surface.
2. Seed as early as conditions permit.
3. When using moldboard plow, use of some physical means of backup as shown in supporting practices 2 through 7 below.

C. Supporting Practices With Cropping Sequences and Tillage Practices

1. No burning of grain and pea stubble where erosion problem is significant.
2. Minimization of pulverization by managing speed and number of tillage operations.
3. Slope division.
4. Uphill plowing, to move soil uphill to maximum practical extent.
5. Crop rotations using, but not limited to, grass and legumes.
6. Seeding out of critical erosion areas (where other management practices do not control erosion) to grass, trees, and shrubs.
7. Establishment of grass waterways.
8. Regular relocation of dead furrows and corners.
9. Contour seeding.

Rainfall - 15 to 17 inches

Major Soil Series: Athena silt loam, Walla Walla silt loam.

Associated Soil Series: Asotin, Chard, Hermiston, Onyx, and Oliphant.

Major Problems: Annual precipitation is limited some years; this causes some producers to maintain summer fallow on about two-fifths of the land. Major soil erosion problems occur during winter storms as a result of the disappearance of straw residue and the limited plant cover on the surface of seeded wheat land. Disappearance of aggregates (clods) and residues on seedbeds prepared for fall seeding following peas or grain the same year likewise contribute to erosion problems. Spring, summer, and early fall cloudbursts occur frequently and establish an erosion pattern which leaves the soil vulnerable to erosion during the winter storm period. Excessive moisture, rain, and/or fast-melting snow, especially on frozen ground, is responsible for much of the erosion.

A. Alternative Cropping Sequences

1. Grain and summer fallow.
2. Annual cropping. Especially recommended for shallow soil sites (less than 3 feet deep) or steep problem-erosion areas.

B. Alternative Tillage Practices

1. Stubble mulch, using tillage equipment that will keep 20 percent of original crop residues on the surface.
2. Seed as early as conditions permit.
3. When moldboard plow is used, use of some physical means of backup as shown in supporting practices 2 through 7 below.

C. Supporting Practices with Cropping Sequences and Tillage Practices

1. No burning of grain and pea stubble where erosion problem is significant.
2. Minimization of pulverization by managing speed and number of tillage operations.
3. Slope division.
4. Uphill plowing, to move soil uphill to maximum practical extent.
5. Crop rotations using, but not limited to, grass and legumes.
6. Seeding out of critical erosion areas (where other management practices do not control erosion) to grass, trees, and shrubs.
7. Establishment of grass waterways.
8. Regular relocation of dead furrows and corners.
9. Contour seeding.

Rainfall - 18 to 20 inches

Major Soil Series: Athena silt loam, Palouse silt loam.

Associated Soil Series: Covello, Hermiston, Mondovi, Onyx, Patit Creek, and Tucannon.

Major Problems: Major soil erosion problem is the disappearance of aggregates (clods) and crop residue on fall-seeded crops, which leaves little or no soil surface protection during winter storms. Winter storms, with rain and/or excessive snowmelt occurring on frozen ground, cause most of the erosion. Exposed subsoil, snowdrifts, steep topography, shallow soils, long slopes, and decreased organic matter are other factors contributing to soil loss.

A. Alternative Cropping Sequences

1. Annual cropping
2. Grain and judicious and limited use of summer fallow.

B. Alternative Tillage Practices

1. Rough minimum tillage.
2. Seed as early as conditions permit.
3. When moldboard plow is used, use of some physical means of backup as shown in supporting practices 2 through 7 below.

C. Supporting Practices With Cropping Sequences and Tillage Practices

1. No burning of grain and pea stubble where erosion problem is significant.
2. Minimization of pulverization by managing speed and number of tillage operations.
3. Slope division.
4. Uphill plowing, to move soil uphill to maximum practical extent.
5. Crop rotations using, but not limited to, grass and legumes.
6. Seeding out of critical erosion areas (where other management practices do not control erosion) to grass, trees, and shrubs.
7. Establishment of grass waterways.
8. Regular relocation of dead furrows and corners.
9. Contour seeding.

Rainfall - more than 21 inches

Major Soil Series: Palouse silt loam, Couse silt loam.

Associated Soil Series: Larkin, Tolo, and Waha.

Major Problems: Soils have slow intake rates which, along with excessive moisture, leave the soil supersaturated and very susceptible to erosion. Disappearance of aggregates (clods) and crop residue on fall-seeded crops leaves little or no soil surface protection during winter storms. Winter storms, with rain and/or excessive snowmelt occurring on frozen ground, cause most of the erosion. Exposed subsoil, snowdrifts, steep topography, shallow soils, long slopes, and decreased organic matter are other factors contributing to soil loss.

A. Alternative Cropping Sequences

1. Annual cropping (wheat-pea or grain-grain).
2. Grain and judicious and very limited use of summer fallow.

B. Alternative Tillage Practices

1. Rough minimum tillage.
2. When moldboard plow is used, use of some physical means of backup as shown in the supporting practices 2 through 7 below.

C. Supporting Practices With Cropping Sequences and Tillage Practices

1. No burning of grain and pea stubble where erosion problem is significant.
2. Minimization of pulverization by managing speed and number of tillage operations.
3. Slope division.
4. Uphill plowing, to move soil uphill to maximum practical extent.
5. Crop rotations using, but not limited to, grass and legumes.
6. Seeding out of critical erosion areas (where other management practices do not control erosion) to grass, trees, and shrubs.
7. Establishment of grass waterways.
8. Regular relocation of dead furrows and corners.
9. Contour seeding.
10. Diversions and/or terraces where adequate outlets exist.

GOAL:

To achieve continuing county-wide improvement in water quality over the long term, by using Best Management Practices to reduce soil losses.

As a step in achieving this goal, we recommend formulation, in writing, of a best management plan for each farm in Columbia County, written by the farmer with any outside assistance he may need to make it workable. Frequent updating will be vital.

The farmers of Columbia County, deeply aware of the correlation of soil losses to water quality in this farming area, choose to comply with the water quality law by engineering this all-out soil erosion control program. We desire that the program remain strictly voluntary and that it be implemented through constant and vigorous education.

NEEDED INCENTIVES FOR GOAL ACHIEVEMENT:

1. Property-tax evaluation adjustment downward on seeded-out ground, and assurance that conservation efforts will not be penalized by raising evaluations on well-conserved lands.
2. Assurance that conservation efforts will not be penalized in government farm programs.
3. Expanded and adequate ACP to share cost of initial conservation operations.
4. Mini-sessions to utilize neighborhood self-help, cooperation, encouragement, and experience.
5. Landlord-tenant relationship in which the tenant's leasehold will not be put in jeopardy by conformance to Best Management Practices.

NEEDED RESEARCH TO BETTER IMPLEMENT NEEDED CHANGES:

1. Chemical control of weedy grasses (cheatgrass, bulbous bluegrass, goatgrass).
2. Chemical control of broadleaf weeds with improved, broad-spectrum chemicals.
3. Improved grain varieties:
 - a. Winter wheat varieties which: will yield with the Gaines-type wheats; can be planted early (quick emergence); are winter hardy; begin growth early in spring; and are resistant to diseases such as rusts and foot rots.
 - b. Spring wheat varieties which will achieve yields comparable to winter varieties, and varieties which will mature earlier (for the higher-elevation-short-growing-season area).
 - c. Barley and oat varieties with better yield potentials.

4. Tillage equipment better able to handle large amounts of residue and to kill weeds effectively.
5. Drills which do an acceptable job of seeding into large amounts of residue and which can withstand demands inherent with rough tillage.
6. Continued emphasis on all phases of no-till.

Map of physiographic areas and/or precipitation zones: See Attached

Total number of producers:

| | |
|--|---------|
| From Agricultural Stabilization and Conservation Service data: | 300 |
| From Columbia County Farm Bureau | 272 |
| <u>Total acres dry cropland:</u> | 204,000 |

Predicted effect of Best Management Practices: Using June 30, 1976, as a base, implementation of Best Management Practices will reduce erosion with a corresponding improvement in water quality. The degree of improvement on an acre-by-acre basis depends on severity of erosion at the beginning of the Best Management Practices implementation period. County-wide, Best Management Practices implementation on 40 percent of the cultivated acres will give a corresponding improvement in water quality.

| Composite of BMP alternatives for each county area | Total acres | Acreage needing BMP | Percentage improvement by 1983 |
|--|-------------|---------------------|--------------------------------|
| 10-14" rainfall | 43,019 | 34,400 | 50% |
| 15-17" rainfall | 76,795 | 69,000 | 50% |
| 18-21" rainfall | 55,828 | 48,800 | 40% |
| 21" plus rainfall | 28,358 | 14,200 | 30% |
| Overall | 204,000 | 166,400 | 40% |

Existing supporting practices

Acres now protected

| | |
|-------------------------------|--------------|
| Trashy fallow (stubble mulch) | 8,400 acres |
| Minimum tillage | 14,500 acres |
| Stripcropping) | |
| Divided slopes) | 21,225 acres |
| Diversions | 1,500 acres |
| Grass waterways | 121 acres |
| Crop rotations | N/A |
| No-till on experimental basis | 100 acres |

Douglas County
WATER QUALITY COMMITTEE
Public Involvement

Water Quality Committee:

How was the Committee established:

Joint public meeting of the South Douglas and Foster Creek conservation districts to form a Water Quality Committee on February 14, 1977.

List the Committee members and show organization and/or areas represented:

Members are to be current members of the South Douglas and Foster Creek conservation districts. Any interested person is encouraged to attend and participate.

Present Members Are:

Area Represented:

Paul Hinderer
Gordon Brett
Robert Lindell
Glenn Ludeman
Michael Sachs
Clark Bromiley
Gerald J. Poole
Tex Troutman
Timothy W. Hicks
Ben Trefry
John McLean

South Waterville
Badger Mountain
East Wenatchee
North Waterville
Rock Island
Badger Mountain
Mansfield
Bridgeport
Mansfield
Del Rio
St. Andrews

Information Program:

Personal Contacts:

Many contacts have been made but not documented.

News Releases:

Number: 18

Newspapers:

Waterville Empire Press, Waterville; Wenatchee World, Wenatchee; The News Standard, Coulee City; Douglas County Review, East Wenatchee; The Star, Grand Coulee.

Posters:

Waterville, Bridgeport, East Wenatchee, Coulee City, Mansfield,
Coulee Dam.

Direct Mail, Letters, Newsletters:

Newsletters, Grain Growers, Extension Office, Approximately 625
on Mailing List. Direct Mail, 37 Individuals Representing 32
Organizations or Governing Bodies.

Meetings: 7

| <u>Location</u> | <u>No. Attended</u> | <u>Public Aware. or Input on BMP</u> |
|------------------------------|---------------------|--------------------------------------|
| Waterville ASCS-SCS Con. Rm. | 09 | Formation |
| Waterville Grange Hall | 51 | Public Aware. and Input |
| Waterville Grange Hall | 07 | Citizen Input |
| Mansfield Grange Hall | 22 | Citizen Input |
| Mansfield City Hall | 17 | Citizen Input |
| Waterville ASCS-SCS Con. Rm. | 05 | Citizen Input |
| Waterville ASCS-SCS Con. Rm. | 13 | Citizen Input |

Best Management Practices Development:

Procedure(s) used (Check Appropriate Boxes):

- ☐ Workshops
☒ Questionnaire
☒ Community Meetings

Public Review of the BMP:

Method Used:

Meetings and Newspaper Media

Number of People Reviewing:

All citizens had the opportunity to review. It was published
in legal newspaper for county. There are approximately 1,000
subscribers in Douglas County.

Douglas County
WATER QUALITY COMMITTEE
Best Management Practices

Precipitation:

Eight to fifteen inches. Eleven inches in the major portion of the county.

Soils:

Soils vary considerably throughout the county. The cropland soils in the north half of Douglas County formed in glacial till of the Wisconsin glacier. The top 1 1/2 feet, approximately, is mixed with recent loess deposits. These soils are in the Haploxeroll great soil group or in the Brown and Chestnut group in the older classification.

Farming soils in the southern half of the county formed mostly in loess deposits that range in age from recent to 50,000 years old. These soils are also Haploxeroll, except in the dry lower part of Moses Coulee where they are Torriorthents or Sierozen in the older classification. The soils in Moses Coulee formed in alluvium and glacial outwash mixed with loess in the surface.

(For Major Soils Series, See Attached Sheet)

Major Problems Addressed:

Quite long, gently sloping, and rolling topography with steep breaks leading from uplands into the lower river terraces. Under normal climatic conditions, there is little runoff that occurs. The conditions that do cause erosion and water pollution are:

- (1) Frozen ground before a snow cover followed by heavy rain.
- (2) Heavy snow cover followed by a fast thaw which melts snow faster than the soil can absorb the water.
- (3) Summer cloud bursts in small or strip areas. Generally, sheet erosion occurs under these conditions and small gullies result where the water congregates.

Best Management Practices:

A. Alternative Cropping Sequences.

1. Winter wheat and stubble mulch fallow.
2. Recrop during moisture favorable years.

B. Cultural Practices.

1. Early fall seeding preferably:
 - a. Northern part of county - September 1.
 - b. Southern part of county - September 10.

2. Cross slope seeding to extent feasible.

C. Alternative Tillage Practices.

1. After harvest:

- a. Leave stubble standing.
- b. Fall chisel.
- c. Fall disc.

2. Spring and Summer.

- a. Summer fallow.

- (1) Disc with harrow attached or sweep with harrow attached.
- (2) Rodweed 1 or 2 times, if summer rains occur that germinate new weeds, rodweed additional times.
- (3) Fertilize.
- (4) Seed.

- b. Spring grain.

- (1) Disc or sweep with harrow attached.
- (2) Fertilize.
- (3) Seed.

Or Alternative End Product of Tillage Practices.

1. Stubble Mulch.

- a. Northern part of county, 15 percent of total straw produced remaining on the soil surface at seeding time. (There is rock in soil profile and the disc is used.)
- b. Southern part of county, 20 percent of total straw produced remaining on the soil surface at seeding time.

D. Recommended Support Practices.

1. Terraces.
2. Grassed waterways.
3. Debris basins.
4. Diversions.
5. Drop spillways.

6. Strip cropping.
7. Divided slope farming.
8. Permanent cover on steep slopes, shallow soils.
9. Subsoiling 18 inches deep or more.

E. Burning Policy.

1. The county has authority to control burning under the Douglas County Air Pollution Control Ordinance and uses a permit system.
2. Burning should be preceded by a preliminary rough tillage and limited to small areas where necessary residue reduction would otherwise lead to excessive soil pulverization.

WATER QUALITY COMMITTEE

Attach a map of physiographic areas and/or precipitation zones.

Total Number of Producers: 776 (from ASCS records)

Total Acres Dry Cropland: 537,733

Predicted Effect of BMP:

Wheat - Summer fallow rotation

Average yield 25 bushels

Residue after harvest 3,375 pounds

Farming operations

Fall - disc

Spring & summer - disc, sweep with harrow attached,

5 rodweedings, fertilize, and seed.

Residue remaining at seeding time - 200 pounds.

| | Pounds of Residue | Renslow Soils 1,000' slope 6% Percent Improvement | Willis Soil 1,000' slope 5% Percent Improvement | Touhey Soil 500' slope 8% Percent Improvement |
|-------------------------------|----------------------|---|---|---|
| Farming up & down slope | 200-500 | 18 | 18 | 18 |
| | 500-1,000 | 50 | 50 | 50 |
| Cross Slope | 0-200 | 25 | 25 | 20 |
| | 200-500 | 39 | 39 | 34 |
| | 500-1,000 | 62 | 62 | 60 |

| <u>Existing Supporting Practices</u> | <u>Acres Now Protected</u> | <u>Number</u> |
|--------------------------------------|----------------------------|---------------|
| Terraces | 2,277 | |
| Grassed Waterways | 380 | |
| Debris Basins | | 415 |
| Diversions | 2,534 | |
| Strip Cropping | 2,000 | |

GARFIELD COUNTY WATER QUALITY PLAN

1978

PREPARED BY THE GARFIELD COUNTY WATER QUALITY COMMITTEE

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Garfield County

WATER QUALITY COMMITTEE

Water Quality Committee:

The first Nonpoint Source of Pollution Committee was formed in 1974 to study the implications of PL 92-500. In 1976 this committee was changed to the Garfield County Water Quality Committee and enlarged to include the following members:

Duane Bartels, Chr.-----Conservation District Supervisor
Wendell Bartlow-----Conservation District Supervisor
Dan McKiernan-----Conservation District Supervisor
Virgil Klaveano, Jr.----Conservation District Supervisor
Dave Geiger-----Conservation District Supervisor
Gary Houser-----County ASCS Committeeman
Wilbur Gingerich-----County ASCS Committeeman
Jim Tetrick-----County ASCS Committeeman
Dick Hastings-----County ASCS Committeeman
Don Richardson-----Wheat Grower
Jerry Ledgerwood-----Wheat Growers Assoc. President
Don Johnson-----Wheat Grower
Cecil Parlet-----Wheat Grower
Tracy Beale-----President County Cattlemen's Assoc.
Bob McGreevy-----Cattleman
Dick Tetrick-----Cattleman
Jerry Jackson-----V.P., County Crop Improvement Assoc.
Gordon Burt-----Grass and Wheat Producer
George Stallcop-----Grass and Wheat Producer
Winnie Kucklick-----Pomeroy City Councilwoman
Jane Johnson-----Housewife and Garden Club Member
Paulette Watson-----Housewife and Garden Club Member
Nancy Ruark-----Housewife and Garden Club Member

The water quality committee was selected by a steering committee consisting of conservation district supervisors and members of the Rural Development Committee. An attempt was made to get representation of all commodity groups, ASCS, city officials, and ladies' groups that might be concerned with the quality of water in Garfield County. Both rural and city residents were included.

INFORMATION PROGRAM AND PUBLIC INVOLVEMENT

Meetings:

| <u>Date</u> | <u>Attendance</u> | <u>Content</u> |
|-------------|-------------------|---------------------------------|
| Jan. 1973 | 140 | Awareness of PL 92-500 |
| Feb. 1974 | 130 | Preliminary Planning BMP |
| Jan. 1975 | 135 | Preliminary Planning BMP |
| Feb. 1975 | 46 | Tentative adoption of plans |
| Jan. 1976 | 105 | Report from DOE--plans |
| Feb. 1976 | 98 | 208 - Entenmann & Roe |
| Mar. 1977 | 16 | Water Quality Comm. Meeting |
| Nov. 1977 | 19 | BMP & Planning - WQC. |
| Jan. 1978 | 17 | Water Quality Committee Meeting |

The information program on 208 started in 1973 with a discussion at the annual Farmers' Day on PL 92-500 and its implications to farm operations on conservation efforts.

As a result of this and other meetings, a Nonpoint Source of Pollution Committee was established in 1974. This committee held several small meetings and discussed conservation practices needed to further the already ongoing conservation program in the county.

In 1975, a county-wide meeting was held with 46 attending. At this time a set of recommended conservation practices for Garfield County was adopted. In reality these were Best Management Practices.

Further discussion and refining of the BMP was done at meetings in 1976 and 1977.

On January 4, 1978 the water quality committee met and approved a final set of BMP. These were mailed to all operators and landowners of Garfield County. Recommendations and suggestions were encouraged by all concerned.

On February 6, 1978 at the annual Farmers' Day these BMP were finally adopted at the public hearing with 76 in attendance.

Newspaper articles were printed in the East Washingtonian, local weekly paper. Public notice of the February 6, 1978 final hearing was also published in local paper.

PROPOSED BEST MANAGEMENT PRACTICES FOR GARFIELD COUNTY

GENERAL POLICY STATEMENT

1. All BMP are based on normal moisture and temperature conditions and are not designed to prevent erosion or runoff due to acts of God.
2. The farmers of Garfield County desire that our soil erosion program remain strictly voluntary and that it be implemented through constant and vigorous education programs.
3. Planning and implementation of increased soil conservation should be under the direction and control of local organizations and local farmers.
4. IMPORTANT: These recommendations are guidelines to inspire the individual in his erosion control efforts; they are not rules to be set in law.
5. Updating of these recommendations as needed will be accomplished through the hearing process.

Garfield County

WATER QUALITY COMMITTEE

MAJOR PROBLEMS IN THE COUNTY

General Soil erosion and water runoff problems are generally distributed over the entire county but differ some by rainfall areas and soil types. Rising land values and increasing costs of production put economic pressure on farmers to manage for highest returns on all land uses.

15 INCH AND LESS RAINFALL AREAS

This area is characterized by long ridges, cut up with canyons, long slopes, and a high percentage of class III & IV land. Summer fallow rotations using moldboard plows up to the last decade has decreased organic matter in the soil. Occasional cloudbursts cause extensive damage. Lack of adequate fall moisture and disease problems has hampered early seedings in the fall, resulting in inadequate cover during winter and early spring.

15 TO 17 INCH RAINFALL AREAS

Long slopes and some steep ground adjoining canyons are typical of this area. Use of summer fallow and the moldboard plow prior to the last decade has decreased organic matter in the soil. Very little annual cropping has been practiced in this area. Damage from cloudbursts also prevails in this area. Early seeding of winter crops has not historically been generally practiced in this area. Excessive runoff on frozen ground is a problem in some years.

18 INCHES AND GREATER RAINFALL AREA

Rolling Palouse type topography is more prevalent in this area. Steeper but shorter slopes prevail. Deep, heavier textured soils are productive but prone to erosion. Due to use of moldboard plows and throwing furrow downhill for many years, clay knobs are becoming more evident. During the last decade annual cropping has become more common, but some summer fallowing is still practiced. Runoff on frozen ground is often a problem.

Garfield County
WATER QUALITY COMMITTEE
Best Management Practices

Precipitation: 15 inches and less

Major Soil Series: Walla Walla

Associated Soil Series: Chard, Oliphant

Major Problems Addressed: Soil erosion, water losses due to runoff,
and some minor wind erosion.

Best Management Practices

A. Alternative Cropping Sequences.

1. Summer fallow and winter wheat, barley or other adaptable crops.
2. Spring barley or wheat recrop on years when moisture is adequate.

B. Alternative Tillage Practices.

1. Stubble mulch (trashy fallow) using tillage equipment that will keep maximum crop residue on the surface. Keep all operations at a minimum and maintain a cloddy surface as much as possible. Goal is to maintain 20 percent of original residue on surface at seeding time.
2. Minimum use of moldboard plow, except for recropping.
3. Seed summerfallow at a date early enough for plants to reach the five tiller stage by December 1. Suggested seeding dates - September 20 to October 15, when weather permits.

C. Supporting Practices.

1. Seed steep ground to vegetative cover.
2. Terraces, desilting basins.
3. Stripcropping.
4. Grass waterways.
5. Slope division.
6. Grass for seed.
7. No-till or zero tillage seeding on steep land on an experimental basis.

Garfield County
WATER QUALITY COMMITTEE
Best Management Practices

Precipitation: 15 to 18 inches

Major Soil Series: Athena

Associated Soil Series: Asotin, Oliphant, Walla Walla.

Major Problems Addressed: Soil erosion and water loss due to runoff.

Best Management Practices:

A. Alternative Cropping Sequences.

1. Emphasis on annual cropping, especially on shallow soils.
2. Summerfallow alternating with winter wheat, winter barley, or other adapted crops.
3. Grain grown two out of three years.
4. Grain grown three out of four years.
5. Grass for seed.

B. Alternative Tillage Practices.

1. If fallow is used, stubble mulch is preferred. Keep all operations at a minimum to keep a maximum crop residue on the surface and maintain a cloddy surface as much as possible. The goal is to maintain 20 percent of the original residue on the surface at seeding time.
2. Minimize fall tillage operations when annual cropping or recropping to maintain a rough cloddy surface.
3. Seed at a date early enough for plants to reach the five tiller stage by December 1, when possible. Suggested seeding dates - September 20 to October 10.
4. Cross slope tillage and/or seeding.

C. Supporting Practices.

1. Seed steep ground to permanent vegetative cover.
2. Terraces, desilting basins.
3. Stripcropping.
4. Grass waterways.
5. Rotary subsoiling on seedling grass fields, when grass stand does not provide over winter soil protection.
6. Slope division.
7. No till or zero tillage seeding on steep land on an experimental basis.

Garfield County
WATER QUALITY COMMITTEE
Best Management Practices

Precipitation: 18 inches and above

Major Soil Series: Athena.

Associated Soil Series: Palouse, Waha, Larkin.

Major Problems Addressed: Soil erosion and water loss due to runoff.

Best Management Practices:

A. Alternative Cropping Sequences.

1. Annual cropping, wheat, barley, or other adapted crops.
2. Judicious and limited use of summerfallow.
3. Grass for seed.

B. Alternative Tillage Practices.

1. Minimize fall tillage operations when annual cropping or recropping to maintain a rough cloddy surface.
2. Moldboard plow or stubble mulch. The goal is to maintain 20 percent of the original residue on the surface at seeding time.
3. Cross slope tillage and/or seeding.

C. Supporting Practices.

1. Seed steep ground to permanent vegetative cover.
2. Terraces, desilting basins.
3. Grass waterways.
4. Rotary subsoiling on seedling grass fields when grass stand does not provide over winter soil protection.
5. Slope division.
6. No till or zero tillage seeding on an experimental basis.

SITUATION STATEMENT OF CONSERVATION IN GARFIELD COUNTY

In the discussions at many meetings in the county concerning PL 92-500 and Section 208 it became apparent by all who were working on improving conservation that a large amount of conservation had already been placed on the land in the past 20 years. This includes:

1. 135 of the 285 farms in the county are signed up with a conservation plan. This includes 60 percent of the total farmland. There are approximately 193,000 acres of dry cropland.
2. The following conservation practices have been adopted:
 - a. 530 miles of terraces.
 - b. 790 acres grass waterways.
 - c. 23 silt ponds constructed.
 - d. 13,000 acres stripcropping established.
 - e. 600 acres deep subsoiled each year.
 - f. 64,000 acres of crop residue management.
 - g. 10,300 acres grass grown for seed and protection.
3. 96,486 acres now protected by installed conservation practices and crop residue management.
4. There are approximately 50,000 acres of class II low erosion land in the county.

These conservation practices have been adopted through educational and technical assistance programs by SCS, Extension Service, and the Pomeroy Conservation District. Financial assistance through the ACP (ASCS) has helped cover part of the costs to the farmer and has facilitated the adoption of more conservation practices.

The committee wishes to emphasize that the progress made to date on conservation has been a voluntary program, conducted on a local level and with the interest and cooperation of the local farmers.

The committee recognized that even though very good progress has been made in conservation in Garfield County, there is more conservation needed to give maximum protection against loss of soil and moisture through runoff and pollution of the streams.

The committee was emphatic that future efforts in improvement of conservation of soil and water should be done entirely on a voluntary basis, under local control and programs, with no further legislation or regulations imposed upon the farm operators.

PL 92-500 has greatly increased the awareness of the operators in the county of the need for increased conservation efforts on the land. This can be best accomplished through a voluntary program.

EFFECTS OF BEST MANAGEMENT PRACTICES ON CROPLAND

PRECIPITATION ZONE: 15 inches or less annual rainfall.

By inclusion of stubble mulch, cross slope tillage and seeding, and divided slopes of 300 feet or more, average annual soil loss can be reduced by 70 percent.

PRECIPITATION ZONE: 15 to 18 inches.

By inclusion of stubble mulch, cross slope farming, and slope division, average annual soil loss can be reduced approximately 59 percent. A rotation including grass five years and grain or grain-summer fallow 5 years can reduce annual soil losses 45 percent over the length of the rotation.

PRECIPITATION ZONE: 18 inches and above.

Reducing tillage and increasing crop residues to 1,000 pounds per acre at seeding time and dividing long slopes can reduce average soil loss by 38 percent. A rotation including grass one-half the time can reduce annual soil losses by approximately 60 percent.

Due to variations in climate, topography, soil type, depth of soil, disease, insects, specific weed problems, or other physiological problems from one piece of land to any others in a given area, certain discretions must be left with individual operators. The BMP must be viewed in light of this statement.

DEFINITIONS

- Annual Cropping - land which is seeded and harvested each year.
- Cloddy Surface - soil aggregates greater than one to two inches in any dimension covering 10 percent of a representative soil surface.
- Summer Fallow - land maintained free of live vegetation during the growing season to allow greater moisture accumulation for the following crops.
- Winter Wheat - wheat planted in the fall of one year to be harvested the following summer.
- Recropping - land harvested one year and seeded in the spring of the next year, on land where summer fallow would normally be used (e.g., cropping two years out of three or cropping three years out of four).

NEEDED INCENTIVES FOR ADOPTION OF BMP ON THE LAND

1. Landlord-tenant relationships on which the tenant's leases will not be put in jeopardy by conformance to adoption of Best Management Practices.
2. Increase in cost-sharing funds through ACP to encourage adoption of more conservation practices.
3. Assurance that conservation efforts will not be penalized in government farm programs.
4. Property tax evaluation adjustments on seeded out ground for conservation purposes.

NEEDED RESEARCH TO BETTER IMPLEMENT CONSERVATION PRACTICES

1. Continued and expanded research on all phases of no-till.
2. Drills which do a good job of seeding into large amounts of residue and which can withstand demands of rough tillage.
3. Improved tillage equipment to better handle large amounts of residue.
4. Chemical and tillage methods to better control weedy grasses (cheatgrass, bulbous bluegrass, goatgrass).
5. Chemical control of broadleaf weeds.
6. Improved grain varieties.
 - a. Winter wheat varieties.
 - b. Spring wheat varieties.
 - c. Winter and spring barley varieties.
 - d. Oat varieties.

GRANT COUNTY

DRYLAND

BMP

PACKAGE

Grant County
WATER QUALITY COMMITTEES

Dry Cropland

Public Involvement

Water Quality Committee:

How was the Committee established:

Ephrata Water Quality Committee--A letter was sent to various organizations to request a representative to serve on the water quality committee. Those responding and the members of the conservation district board were appointed to serve on the water quality committee.

List the committee members and show organization and/or areas represented:

| | | | |
|--------------------|----------------------------------|------------------------------|-----------|
| Phil Anderson | White Trail Grange | South of Ephrata | Irrigated |
| Russ Wentworth | Irrigation District | South of Ephrata | Irrigated |
| John Ledgerwood | Ephrata Chamber of Commerce | | |
| Dick Carstensens | Grant County Wheat Growers | Hartline | Dryland |
| Walter Clarke | Adrian Grange | Northeast of Soap Lake | Dryland |
| Harvey Heer | Conservation District | Northwest of Soap Lake | Dryland |
| Reed Benedict | Conservation District | Soap Lake | Irrigated |
| Thomas F. Youngers | Conservation District | South of Ephrata | Irrigated |
| Lester Rataezyk | Conservation District | South of Ephrata | Irrigated |
| Ed Barbre | Conservation District | West of Ephrata | Dryland |

North Grant County Water Quality Committee--The conservation district after several meetings appointed themselves and a representative of the Wheat Growers Association to be the water quality committee.

List the committee members and show organization and/or areas represented:

| | | |
|------------------|---------------------------|---------------------|
| Norman Larsen | Conservation District | South of Crab Creek |
| Ralph Ribail | Conservation District | Crab Creek |
| Ken Evers | Conservation District | Almira |
| Kenneth F. Arlt | Conservation District | North of Crab Creek |
| Dave Goodwin | Conservation District | South of Hartline |
| Jesse Knopp | Conservation District | Coulee City |
| Dick Carstensens | Wheat Growers Association | North of Hartline |

Quincy Water Quality Committee--The conservation district identified community leaders and asked them to serve on a joint irrigated and dryland water quality committee. The membership has remained open and encouraged interested people to become involved.

List the committee members and show organization and/or areas represented:

| | | |
|-----------------|----------------------------|-----------|
| Don Weil | Northwest of Quincy | Irrigated |
| Jim Poldervart | Southeast of Quincy | Irrigated |
| Doug Finkelburg | Quincy Irrigation District | |
| Damon Calloway | South and West of Quincy | Irrigated |
| Jack Hoffner | Winchester | Irrigated |
| Wayne Ker | North of Quincy | Irrigated |
| Jack Toeus | West of Quincy | Irrigated |
| Tosh Tsukamaki | South of Winchester | Irrigated |
| John Blain | Northeast of Quincy | Irrigated |
| Jim Weitzel | George | Irrigated |

| | | |
|----------------|---|-----------------------|
| Don Grebb | East of Quincy | Irrigated |
| Ivan Overen | North of Quincy | Dryland and Irrigated |
| Ray Stuhmiller | Northwest of Quincy and Southwest of George | Dryland |

Information Program:

Personal Contacts:

Each dryland operator has been contacted by phone at least twice concerning meetings. Each water quality committee member has discussed with other people, but no record of these contacts was kept.

News Releases:

Five general news releases were generated locally.

Number of Newspapers:

The above releases were published as well as meeting notices.

Radio Coverage:

Cooperative Extension Service devoted at least one program to 208. Announcements of water quality committee and public meetings were made.

Direct Mail, Letters, and Newsletters:

One direct mailing to all operators. Two direct mailings to dryland operators and owners. One Cooperative Extension Service dryland newsletter to all dryland producers.

Meetings:

| <u>Location</u> | <u>Number Attended</u> | <u>Public Awareness or Input on BMP</u> |
|-----------------|------------------------|---|
| White Trail | 40 | Public Awareness |
| Ephrata PUD | 23 | BMP Input |
| Wilson Creek | 15 | Public Awareness February 3, 1977 |
| Hartline | 54 | Public Awareness April 20, 1977 |
| Quincy | 54 | Public Awareness |
| Quincy | 5 | BMP Input |

Best Management Practices Development:

Procedure used: Workshops
Community meetings
Questionnaire
98 sent out - 28 returned

Public Review of the BMP:

Method used:

- a. mailed out draft and held review on October 25, 1977, at Hartline,
- b. mailed out BMP draft to owners and operators asking for review and comment,
- c. mailed out BMP draft to owners and operators announcing public review meeting,
- d. a letter with a copy of the draft BMP was sent out for review to all owners and operators, and
- e. a letter with a copy of the redraft BMP was sent out for review and to announce a public review to all owners and operators.

Number of people reviewing:

- a. approximately 100 were sent out in each of the above mailings and approximately 43 were present for the public review,
- b. thirteen people attended the review meeting, and
- c. 80 draft BMP and letters were sent out. 43 people were present for the public review.

Grant County

WATER QUALITY COMMITTEES

Attach a map of physiographic areas and/or precipitation zones.

EPHRATA

Total number of producers: 25

Total acres dry cropland: 52,000

Predicted effect of BMP:

| <u>Composite of BMP Alternatives for Each County Area</u> | <u>Acreage Needing BMP</u> | <u>Percentage Improvement</u> |
|---|--------------------------------|-----------------------------------|
| Fall tillage, trashy fallow, seed by Sept. 15 | 5,200 | 10% |

| <u>Existing supportig practices</u> | <u>Acres now protected</u> |
|-------------------------------------|----------------------------|
| Grassed field edges | 260 |
| Terraces | 600 |
| Cross Slope farming | 450 |
| Culvert drops | -0- |
| Rock dams | -0- |
| Seed prior to Sept. 1 | 5,200 |

NORTH GRANT COUNTY

Total number of producers: 75

Total acres dry cropland: 207,575

Predicted effect of BMP:

| <u>Composite of BMP Alternatives for Each County Area</u> | <u>Acreage Needing BMP</u> | <u>Percentage Improvement</u> |
|---|--------------------------------|-----------------------------------|
| Fall tillage, trashy surface mulch, seed by September 20 | 41,000 | 20% |

| <u>Existing supporting practices</u> | <u>Acres now protected</u> |
|--------------------------------------|----------------------------|
| Terraces | 4,500 |
| Cross Slope Seeding | 52,000 |

QUINCY

Total number of producers: 17

Total acres dry cropland: 11,540

Predicted effect of BMP:

| <u>Composite of BMP Alternatives for Each County Area</u> | <u>Acreage Needing BMP</u> | <u>Percentage Improvement</u> |
|---|--------------------------------|-----------------------------------|
| Fall tillage (or no tillage), trashy fallow and seeding | 4,393 | 38% |

GRANT COUNTY
DRY CROPLAND
BEST MANAGEMENT PRACTICES

Precipitation: 6 - 12 inches

Major Soil Series:

Adkins, Shano, Renslow, Bagdad

Associated Soil Series:

Prosser, Willis, Endicott

Major Problems Addressed:

Water erosion, wind erosion, noxious weed control, variation in weather conditions, over tillage for weed control, and overgrazing of small grain stubble by livestock.

Best Management Practices:

- A. Cropping Sequence
 - 1. 2 year rotation (small grain - summerfallow)
 - 2. Recropping when moisture permits
- B. Cultural Practices
 - 1. Sandy soils
 - a. No fall tillage
 - 2. Silt loam soils
 - a. No fall tillage
 - b. Fall chisel or subsoil across the slope in standing stubble.
 - c. If stubble is grazed it will be subsoiled across the the slope after grazing.
- B1. End Product
 - 1. Trashy fallow
 - a. Periodic shallow cultivation adequate to control weeds and maintain a loose, trashy surface mulch.
 - b. 20 percent of gross amount of crop residue raised remaining after fall seeding.
 - c. Minimum tillage summerfallow with chemical control of weeds.

B2. Fall seeding

1. Sandy soils

- a. Deep furrow drills - complete on or before September 15.
- b. Shallow drills - complete on or before October 15.

2. Silt loam soils

- a. Complete on or before September 20.

C. Support practices that may be used

- 1. Mulching in years of low residue production
- 2. Grassed field edges
- 3. Terraces
- 4. Cross slope farming
- 5. Earlier seeding
- 6. Seed drainage ways early
- 7. Seed steep hillsides early
- 8. Straw relocation
- 9. Divided slope farming
- 10. Drop structures
- 11. Grassed waterways

BEST MANAGEMENT PRACTICES ARE BASED ON NORMAL CLIMATIC CONDITIONS AND NOT FOR THE ABNORMAL CONDITIONS.

Klickitat County

Glade Area - Yakima County

WATER QUALITY COMMITTEE

Public Involvement

Water Quality Committee

How was the committee established:

The Eastern Klickitat, Central Klickitat, and Underwood conservation districts met in December 1976, along with representatives from Wheat Growers, Cattlemen's, and the Grange. It later was the consensus of the conservation districts to organize a countywide 208 water quality committee.

List the committee members and show organization and/or areas represented:

Martin Copenhefer, Mabton, Eastern Klickitat CD
Gerald Davis, Mabton, Eastern Klickitat CD
Hank Busch, Bickleton, Klickitat County Wheat Growers
Roscoe Imrie, Roosevelt, Klickitat County Cattlemen's
John Rasmusson, Roosevelt, Grange
Steve Graves, Lyle, Underwood CD
Karl Amidon, Goldendale, Central Klickitat CD
Don Hocht, Goldendale, Central Klickitat CD
Ed Hocht, Goldendale, Grange
Cal Linden, Centerville, Klickitat County Cattlemen's
Ray Mattson, Centerville, Grange
Vern Burghart, SCS, Goldendale
Roger Pond, Extension, Goldendale
Scott Hallett, ASCS, Goldendale
Tom Gohlke, SCS, White Salmon

Informational Program:

Program consisted of:

Use of local newspapers; presentations at Conservation District, Grange, Cattlemen's, and related type meetings by committeemen, the County Cooperative Extension Service, and the Soil Conservation Service; and letters and questionnaires to landowners and operators.

Personal Contacts:

A substantial amount of personal contacts was made to organize the committee, which represents a good cross section of the county, and the Glade Area of Yakima County. Committeemen discussed the program in local communities and at various meetings.

News Releases: Six news releases in local papers.

Number Newspapers: Goldendale Sentinel
White Salmon Enterprise

Radio and TV Coverage: None

Direct Mail, Letters, and Newsletters:

Two direct mailings to 800 landowners and operators. First mailing included general information about the 208 Program and Best Management Practices. Second mailing included a cover letter, a publication on the 208 Program, and proposed Best Management Practices.

Meetings:

The water quality presentation was usually part of Conservation District, Grange, and other related type meetings. Some presentations were made by representatives of the Conservation Commission.

| <u>DATE</u> | <u>MEETING</u> | <u>LOCATION</u> | <u>ATTENDING</u> | <u>TYPE OF MEETING</u> |
|-------------|---|-----------------|------------------|-----------------------------------|
| Feb. 1976 | Eastern Klickitat CD (Annual Meeting) | Bickleton | 30 | Public Awareness |
| Jan. 1976 | Central Klickitat CD (Annual Meeting) | Goldendale | 50 | Public Awareness |
| Feb. 1977 | Eastern Klickitat CD (Annual Meeting) | Bickleton | 60 | Public Awareness, Input on BMP |
| Feb. 1977 | Klickitat County Agriculture Council | Goldendale | 15 | Public Awareness |
| Mar. 1977 | Centerville Grange | Centerville | 40 | Public Awareness |
| Jan. 1978 | Eastern Klickitat CD | Bickleton | 60 | Public Awareness |
| Jan. 1978 | Central Klickitat CD | Goldendale | 50 | Public Awareness |
| Oct. 1977 | Klickitat County Cattlemen's Association | Goldendale | 50 | Public Awareness Input on BMP |
| Dec. 1977 | Centerville Grange | Centerville | 40 | Public Awareness |
| Jan. 1978 | Pomona Grange | Goldendale | 20 | Public Awareness Input on BMP |
| Nov. 1977 | Klickitat County Wheat Growers | Bickleton | 80 | Public Awareness |
| | | TOTAL: | 495 | |

Best Management Practices Development:

Procedure(s) used (Check Appropriate Boxes):

- ☒ Workshops
- ☒ Questionnaire
- ☒ Community meetings

Public Review of the BMP:

Method used: Proposed Best Management Practices were mailed out to landowners and operators.

Number of people reviewing: Eight hundred landowners and operators were mailed a questionnaire and proposed BMP. Approximately 180 of these questionnaires were returned with comments addressing the BMP and/or questionnaires.

Klickitat County

WATER QUALITY COMMITTEE

Best Management Practices

Precipitation: 6-14 inches (Eastern Klickitat, Glade area of Yakima County, and Goodnoe Hills).

Major Soils: There is no published soil survey in Klickitat County. The soils generally are silt loam in texture and range from shallow to deep.

Major Problems Addressed: The reduction of crop residue on soil surface during a summer fallow year. Sheet and rill erosion. Runoff of winter and early spring precipitation while ground is frozen.

Best Management Practices:

A. Alternative Cropping Sequences

1. Winter grain - summer fallow
2. Winter wheat - spring barley - summer fallow (moisture favorable years)

B. Alternative Cultural and Tillage Practices

1. Leave stubble standing
Spring disk or chisel plow
Cultivate
Rod weed 2-4 times or sweep
Fertilize
Seed - September 1-20 (green bug problem)
2. Fall chisel
Light disk or sweep
Rod weed 2-4 times or sweep
Fertilize
Seed - September 1-20 (green bug problems)
3. Plow heavy, flat land soil with less than five percent slope
Other operations similar to alternative 1 and 2
4. Fall chisel (for spring seeded crop)
Spring cultivate
Fertilize
Seed

B1. Alternative End Product

1. Trashy fallow, maintain 20 percent of original residue on surface at seeding time

2. Rough cloddy surface over winter when spring seeding

C. Supporting Practices

1. Level terraces
2. Diversions
3. Desilting dams
4. Permanent vegetation on steep or shallow soils

Klickitat County

WATER QUALITY COMMITTEE

Best Management Practices

Precipitation: 14-24 inches (Central Klickitat)

Major Soils: There is no published soil survey in Klickitat County. The soils vary from silt loam to silty clay loams in texture and range from shallow to deep.

Major Problems Addressed: Runoff of winter and early spring precipitation while ground is frozen. Shallow soils inability to hold winter precipitation. Elevation and heat unit problems which are not conducive to raising spring crops in the high prairie area.

Best Management Practices:

A. Alternative Cropping Sequences

1. Winter grain - summer fallow 6 years and alfalfa and/or grass 7-20 years
2. Winter wheat - spring grain, summer fallow

B. Alternative Cultural and Tillage Practices

1. Leave stubble standing
Spring disk or chisel plow
Cultivate
Rod weed 2-4 times or sweep
Fertilize
Seed - September 1-20
2. Fall chisel
Light disk or sweep
Rod weed 2-4 times or sweep
Fertilize
Seed - September 1-20
3. Fall plow or spring plow (alfalfa or grass)
Cultivate
Fertilize
Seed - September 1-20

B1. Alternative End Product

1. Trashy fallow, maintain 20 percent of original residue on surface at seeding time
2. Extremely rough cloddy surface over winter when spring seeding

C. Supporting Practices

1. Level terraces
2. Diversions
3. Sod waterways
4. Desilting dams
5. Permanent vegetation on steep or shallow soils

Klickitat County
WATER QUALITY COMMITTEE
Best Management Practices

Precipitation: 24-40 inches

Major Soils: McGowan and Para gravelly loams, Gunn and Dalig loam

Major Problems Addressed: Sheet and rill erosion caused by high intensive storms or runoff of precipitation when ground is frozen. Although this is a high precipitation zone, yields of hay seldom exceed one and one-half ton. Only wheat grass or drought tolerant grasses survive, which indicates soil and climate problems.

Best Management Practices:

A. Alternative Cropping Sequences

1. Winter grain - summer fallow 6 years and alfalfa and/or grass 7-20 years
2. Winter grain recrop 2-3 years and alfalfa and/or grass 7-20 years

B. Alternative Cultural and Tillage Practices

1. Spring plow or disk (wheat stubble or alfalfa and/or grass)
Cultivate
Rod weed 1-3 times or disk
Fertilize
Seed - September 15-25
2. Fall plow
Cultivate
Fertilize
Seed - September 15-25

B1. Alternative End Product

1. Rough cloddy surface at fall seeding time
2. Maintain 20 percent of original residue on surface at fall seeding time

C. Supporting Practices

1. Terraces
2. Diversions
3. Sod waterways
4. Cross slope tillage and/or seeding
5. Permanent vegetation on steep or shallow soils
6. Desilting dams

Klickitat County

WATER QUALITY COMMITTEE

Best Management Practices

Precipitation: 35-50 inches (Western Klickitat - Orchards)

Major Soils: McGowan and Para gravelly loams, Hood and Parkdale loams

Major Problems Addressed: No major problems exist unless orchard cover were to be removed and clean cultivated year-round.

Best Management Practices:

A. Alternative Cropping Sequences

1. Permanent orchard - annual cover crop
2. Permanent orchard - permanent cover crop

B. Alternative cultural and tillage practices

1. Annual cover crop - fall planted and disked down in spring
2. Permanent cover crop - flail mowed at intervals, spring through summer
3. Chisel between tree rows

Klickitat County
WATER QUALITY COMMITTEE

Attached is a map of the precipitation zones.

| | | |
|-----------------------------------|--------|---------------|
| <u>Total Number of Producers:</u> | 6-14" | 150 producers |
| | 14-24" | 450 producers |
| | 24-50" | 150 producers |
| <u>Total Acres Dry Cropland:</u> | 6-14" | 124,000 acres |
| | 14-24" | 113,000 acres |
| | 24-50" | 4,500 acres |

Predicted Effects of BMP: Field experience in the use of USLE in this county has not proven very successful in predicting soil loss. Researchers and specialists feel that more field data is needed before USLE can be modified. Once modified, USLE will become a working tool for evaluating the effectiveness of BMP.

| Composite of BMP Alternatives For Each Area | | Acreage Needing BMP |
|--|-----------|-----------------------------|
| 6-14" (trashy fallow and minimum tillage) | | 24,800 |
| 14-24" (grain-summer fallow and long-term alfalfa and/or grass rotation [5-15 years]) | | all land now in rotation |
| 35-50" (orchard with cover) | | less than 100 |
| 24-40" (grain-summer fallow and long-term alfalfa and/or grass) | | all land now in rotation |
| Existing Supporting Practices | Feet | Acres Now Protected |
| 6-14" Diversion-Terraces | 537,538 | 11,000 |
| 14-24" Diversion-Terraces | 1,209,286 | 21,767 |
| Sod waterways | | 151* |
| 24-40: Diversions | 2,500 | |
| Sod waterways | | 83* |
| 35-50: Tile Drainage | 2,000 | 450 |
| Sod waterways | | 30* |
| Diversion-Terraces | 35,000 | |

* Acres in waterways

Lincoln County
WATER QUALITY COMMITTEE

Public Involvement

Water Quality Committee:

How was the committee established:

First, the Lincoln County Conservation District supervisors accepted the Conservation Commission's invitation to participate in the planning and implementation of PL 92-500. Then the district contacted all organizations within the county it felt would be interested in participating. The Lincoln County Water Quality Committee is the accumulation of those organizations' representatives including conservation district supervisors and associate supervisors. Various agencies' representatives serve as technical advisors to the water quality committee.

The committee members, organization, and/or areas represented:

Bernie Duenwald, Davenport-Edwall, Lincoln County Conservation District

Ed Gray, Edwall, Pomona Grange

Fred Flemming, Reardan, Farm Bureau

Chris Laney, Sprague, Wheat Growers Association

Loren Moos, Edwall County Commissioners

Larry Iverson, Lamona, Lincoln County Conservation District and ASCS Committee

Keith Nelson, Wilbur-Almira, Cattlemen's Association

Roger Lybecker, Harrington, Lincoln County Conservation District

Tom Schultz, Reardan-Edwall, Wheat Growers Association

Curtis Nelson, Creston, Lincoln County Conservation District

Mark Martin, Wilbur, Lincoln County Conservation District

Robert Bahr, Wilbur, Lincoln County Conservation District and ASCS Committee

Ed Johnson, Wilbur, State Wheat Growers Association

Orrie Morse, Edwall, Lincoln County ASCS Committee

Technical Advisory Group:

Lenn Dompier, Soil Conservation Service

Cliff Byrd, State Conservation Commission

Felix Entenmann, State Conservation Commission

Roland Hintze, Cooperative Extension Service

Informational Program:

News Releases:

Lincoln County's four weekly newspapers; The Davenport Times, The Wilbur Register, The Odessa Record, and The Sprague Advocate; all participated in reporting the activities of the Lincoln County Water Quality Committee. These included preliminary information articles explaining PL 92-500. Later articles inturn announced and explained both workshops and community water quality meetings.

Radio and TV Coverage:

TV coverage was deemed too expensive to pursue. The Community Calendar Service of KHQ Radio Station in Spokane ran free spot announcements on both the workshops and the community water quality meetings.

Lions Club Meetings:

Members of the Lincoln County Water Quality Committee attended six Lions Club meetings throughout the county where they gave short presentations on PL 92-500 and showed a slide program. They then answered questions and urged those present to attend upcoming community water quality meetings. Between January 18 and February 15, 1977, Lions Clubs were addressed at Edwall, Harrington, Odessa, Wilbur, Reardan, and Davenport.

Workshops:

The Lincoln County Conservation District and the Lincoln County Wheat Growers Association annually cosponsor four informational meetings. These meetings were held in February of 1977 at Odessa, Wilbur, Reardan, and Sprague. During the 10:30 a.m. to noon segment of each workshop, the Lincoln County Water Quality Committee gave a presentation on PL 92-500 and answered questions. The pamphlets, "In a Seedbed. . . Not a Streambed," and "Water Quality Management and Nonpoint Sources of Pollution" were distributed. The four meetings drew approximately 300 producers.

Direct Mail, Letters, and Newsletters:

The major tool used to contact the users was a mailing to all landowners and/or operators. Some 2,200 letters were mailed January 31, 1977, using the ASCS mailing list which eliminates duplication (the ASCS mailing list also includes banks, agribusinesses, and grain warehouses). The letters included the place, date, time, and meeting chairman of all nine community water quality meetings. Along with a short explanation of its reason and purpose, the pamphlet "The Clean Water Act and the Farmer" was also enclosed.

Meetings:

Number and Attendance:

Data gathered at community water quality meetings held during February comprised the major element used by the Lincoln County Water Quality Committee to draw up tentative BMP. A meeting was held in each of the county's nine communities.

The community meetings attendances are in parentheses:

Odessa (13), Wilbur (44), Almira (14), Edwall (11), Creston (15), Davenport (25), and Sprague (17). Attendances in Odessa and Edwall were seriously weakened when meetings conflicted with funerals of long time residents.

Total attendance of the nine meetings equaled 206, representing 24.2 percent of the county's producers.

Best Management Practices Development:

Procedure used:

Each of the nine community water quality meetings was started off with yet another review of PL 92-500 and a slide presentation.

Then worksheets were handed out. The two-part worksheets were the principal tools used by the Lincoln County Water Quality Committee for gathering citizen input on which to formulate BMP.

The raw material gathered from these worksheets was the principal tool used by the Lincoln County Water Quality Committee in writing up a BMP package. This process took place over the course of numerous committee meetings during the late winter and early spring of 1977.

Public Review of the BMP:

During the second week in May a second round of community meetings were held; this time condensed into four instead of nine. These meetings provided growers and owners an opportunity to endorse, amend, or condemn the draft BMP drawn up by the committee.

Using the ASCS mailing list again, all landowners and/or operators were sent a copy of the draft BMP from an April 15 mailing.

All four of the county's newspapers also printed the draft BMP, along with advertising the review meetings.

The four review meetings were held at Reardan, Davenport, Wilbur, and Sprague.

Although attendance at the four meetings totaled only 48, participation by those in attendance was excellent. Many small refinements were made to the BMP.

The low attendance was attributed to a generally favorable acceptance of the BMP.

Six written responses were received by the committee. They, too, were generally favorable; terminology seeming to be the only complaint.

Conclusion of Public Involvement:

Utilizing the additional data from the review meetings, technical assistance from advisory people, and insight from neighboring counties' BMP development; the committee completed its initial BMP package for presentation to DTAC.

Lincoln County

WATER QUALITY COMMITTEE

Best Management Practices

| <u>Major Soil Series</u> | <u>Precipitation</u> |
|--------------------------|----------------------|
| Shano | 9 inches and under |
| Renslow-Ritzville | 9 to 12 inches |
| Bagdad | 12 to 15 inches |
| Broadax | 15 to 18 inches |

BEST MANAGEMENT PRACTICES STATEMENT FOR LINCOLN COUNTY

Best Management Practices are determined to be those operations which will leave the soil in a condition to improve water quality under normal weather conditions. It is understood that abnormal conditions consisting of cloud bursts, lack of snow cover, poor crop conditions, or any other natural deterrent will alter the effectiveness of any management practice. It should be also understood that individual operators must adjust their current economic situation as it is affected by landlords, market prices, operating costs, and governmental controls (e.g., allotments).

The operators within Lincoln County have decided to work with and within Public Law 92-500 dealing with nonpoint pollution. The major pollution problem in the county results from winter and spring runoff from mis-managed fields of winter wheat seeded on summer fallow. The average amounts of annual precipitation make summer fallow necessary in Lincoln County crop rotations.

Definitions required for the understanding of the Lincoln County Best Management Practices:

- ANNUAL CROPPING - Land which is seeded and harvested every year.
- CLODDY SURFACE - Soil aggregates greater than one inch in any one dimension covering 10 percent of a representative soil surface.
- EARLY SEEDING - Seeding of winter wheat should be completed when agronomically feasible by the September date established for each of the four precipitation zones.
- SUMMER FALLOW - Land maintained free of live vegetation during the growing season to allow greater moisture accumulation for the following crop.
- TRASHY FALLOW - A minimum of 20 percent of crop residues have been left on and near the surface of the land at planting time.

- WINTER WHEAT - Wheat planted in the fall of one year to be harvested the following summer.
- RECRIPPING - Land harvested one year and seeded in the spring of the next year, on land where summer fallow would normally be used (e.g., cropping two years out of three or cropping three years out of four).

Best Management Practices:

- A. Alternative Cropping Sequences and Early Fall Seeding Dates by Precipitation Zones
 - 1. 9 inches and under
 - a. Winter grain - summer fallow
 - b. Fall seeding to be completed by September 8
 - 2. 9 to 12 inches
 - a. Summer fallow - winter grain
 - b. Summer fallow - winter grain - spring grain
 - c. Fall seeding to be completed by September 12
 - 3. 12 to 15 inches
 - a. Summer fallow - winter grain
 - b. Summer fallow - winter grain - spring grain
 - c. Fall seeding to be completed by September 16
 - 4. 15 to 18 inches
 - a. Summer fallow - winter grain
 - b. Summer fallow - winter grain - spring grain
 - c. Summer fallow - winter grain - spring grain - spring grain
 - d. Annual cropping
 - e. Fall seeding to be completed by September 20
- B. Fields annually cropped or recropped are in compliance with BMP if the ground surface is not in a pulverized condition going into the winter runoff period.
- C. End Product

Summer fallowed fields should meet one or more of the three following criteria at seeding time. A combination of all three

may be desirable because it lessens stringent requirements for any single one, i.e., mulch and clods can compensate for poor wheat cover.

1. Early fall seeded --- completed by the September date established for each of the four precipitation zones.
2. Trashy-fallowed --- a minimum of 20 percent of crop residues left on and near the land surface at planting time.
3. Cloddy surface --- soil aggregates greater than one inch in one dimension covering 10 percent of representative soil surface.

C. Supporting Practices that are Deemed "Good" and "Optional" for Cropland in Lincoln County

- | | |
|--|--------------------------------|
| 1. Divided slope farming | 9. Straw relocation |
| 2. Chiseling or subsoiling | 10. Reverse turns when seeding |
| 3. Terraces | 11. Green manure crops |
| 4. Cross slope farming | 12. Grass in the crop rotation |
| 5. Double seeding of drainage ways | 13. Grassed waterways |
| 6. Retire land that is extremely shallow or excessively steep to permanent cover | 14. Dams |
| 7. Grass hilltops that are low yielders and need soil building | 15. Drop structures |
| 8. Stripcropping | 16. Windbreaks |
| | 17. Tile drainage on grainland |

D. Burning Policy

Burning with Lincoln County is under the jurisdiction of the county commissioners and is regulated by permits.

Due to variations in climate, topography, soil type, depth of soil, disease, insects, specific weed problems, or other physiological problems from one piece of land to any others in a given area; certain discretions must be left with individual operators. The aforementioned practices must be viewed in light of this statement.

The Best Management Practices presented at this point in time are a result of the endless experimentation by individual operators within this farming area. At no time should any operator be penalized for further experimentation in order to improve his agronomic position. It is through such experimentation that better management practices may be developed.

Lincoln County

WATER QUALITY COMMITTEE

Total Number of Producers: 850

Total Acres Dry Cropland: 814,200

Predicted Effect of BMP Application:

| General Precipitation & Slope Length & Steepness | Estimated Soil Loss w/o BMP | Estimated Soil Loss w/BMP | Estimated Delivery Rate to Stream | Estimated Acres Affected |
|--|-----------------------------------|---------------------------------|---|--------------------------------|
| 9" and under (Predominantly 1,200 ft. -5%) | 2 tons | 1.5 tons | 15% | 1,600 acres |
| 9" - 12" (Predominantly 1,000 ft. - 5%) | 4 tons | 2.3 tons | 20% | 7,400 acres |
| 12" - 15" (Predominantly 500 ft. - 10%) | 15-23 tons | 6 tons | 20% | 12,400 acres |
| 15" - 18" (Predominantly 400 ft. - 15%) | 20-30 tons | 7-10 tons | 20% | <u>13,200 acres</u> |
| TOTAL | | | | 34,600 acres |

Existing Supporting Practices
and Field Conditions

Acres Now Protected

| | |
|---|---|
| Terraces | 167 miles |
| Divided Slope Farming | 4,500 acres |
| Trashy Fallow | 200,000 acres (there are about 335,000 in fallow each year) |
| Grassed Waterways | 300 miles |
| Land in Crop | 479,200 acres (including hay, pasture, and grass for conservation on cropland) |
| Summer Fallow | 335,000 acres |
| Estimate on Annually Early Seeding or Cloddiness on Non Trashy Fallow | 100,400 acres |

NOTE: See attached map showing precipitation zones and dryland cropland acreage in these zones.

Spokane County
WATER QUALITY COMMITTEE

INTRODUCTION

Spokane County (1,125,310 acres with approximately 458,000 acres of cropland) is made up of a complex pattern of soil and vegetation types. This complexity is due to differences in topography; climate; and a history of disturbances, geological and man-made.

The Spokane River Valley, from the Little Spokane River junction to the Idaho border, is a glacial outwash topped with a thin gravelly soil. It is rapidly developing into an urban area. The mountainous areas in the northeastern part of the county are mostly timber and pasture land. The rolling hills area in the southeastern part of the county is more commonly thought of as part of the Palouse grain area. The western part of the county is made up of the channeled scablands with areas of isolated rolling hills with deep soils. The northeastern part of the county is generally level to gently sloping outwash plains and terraces which are predominantly hay, pasture, and grain.

The rainfall pattern generally increases from about 15 to 16 inches annually in the southwestern part of the county to about 50 inches at Mt. Spokane. Precipitation is light in the summer, increases in the fall and winter, and decreases in the spring; except for late May and early June rains, followed by a dry spell after the first of July.

During an average winter, frost in the soil reaches a depth of 15 to 20 inches. Extreme depths of 36 inches have been reached.

The highest precipitation of cultivated soils is about 25 inches of annual rainfall.

Spokane County
WATER QUALITY COMMITTEE

Public Involvement

Water Quality Committee:

The Spokane County Conservation District Board of Supervisors first recognized that they would have to respond to Public Law 92-500 after the Washington Association of Conservation Districts' annual meeting in November, 1974. This is in agreement with the District Long-Range Program where the number one priority is "the prevention and control of nonpoint source pollution."

The supervisors kept informed on a variety of interpretations and proposals concerning P.L. 92-500 until their October 12, 1976 board meeting when they made an official commitment to provide information to their cooperators.

At a special conservation district board meeting on October 27, 1976, they established a steering committee to organize a county-wide water quality committee. At their January 11, 1977, conservation district board meeting, the initial selection of members for the water quality committee was made.

The Spokane County Water Quality Committee was officially formed at their first meeting on January 18, 1977, in Spokane. Additional members were added to the committee to bring the membership to 44 persons.

Representatives on the water quality committee have membership in and represent various organizations. The League of Women Voters and the Audubon Society were invited to have representatives but none attended.

Informational Program:

The informational program was a diversified effort using all of the methods listed below.

Personal Contacts:

Most of the water quality local committee chairmen made personal phone calls to various individuals inviting them to come to meetings and they informed them as to what the meetings would be about. We have no exact number of those people who were contacted in person or by phone.

News Releases:

There were eight news releases and advertisements in local papers. The news releases were primarily in the following newspapers: The Standard-Register at Tekoa, Washington; and the Cheney Free Press, Cheney, Washington. Copies of these are in the conservation district scrapbook.

Number Newspapers:

Articles and ads were placed in the Standard-Register, Tekoa; Tri County Tribune, Deer Park; Cheney Free Press, Cheney; and The Valley Herald, Spokane Valley.

Radio and TV Coverage:

KHQ Radio-TV announcer, Wey Simpson, announced the many local community meetings on a daily basis on his morning and noon agriculture program. He also presented a half-hour TV program (a slide talk by Felix Entenmann). A slide talk prepared by Verle Kaiser was presented on KHQ-TV.

Direct Mail, Letters, and Newsletters:

Four newsletters were printed about the "208" program with an agenda of local community meetings and mailed to over 4,000 farmers, along with over 2,500 copies of Extension Bulletin #672, "Water Quality Management and Nonpoint Sources of Pollution."

Meetings:

The water quality committee arranged and conducted 21 informational, public awareness, and BMP input meetings in February and March of 1977. These meetings were attended by more than 450 people. Verle Kaiser developed a slide talk on some 40 years of erosion history in the Palouse which was presented to the water quality committee, at several of the local community meetings, and on KHQ-TV.

At the Freeman Farmers' Day (district annual meeting), a slide talk on the "208" program was presented and discussed. There were 250 persons present at the meeting.

The Cooperative Extension Service held an informational meeting on March 12, 1977, at Liberty High School with "208" as part of the program. It was well attended.

Best Management Practices Development:

An agenda, worksheets, and questionnaires were used at community meetings and were also mailed out.

The questionnaire was mailed to over 2,000 farmers, and it was also used at the local community meetings. It is impossible to tell which ones were mailed in or filled out at the meetings. The local groups also filled out the questionnaire as a group. It is estimated that approximately 25 percent of the farmers in the county participated in one way or another.

Public Review of the BMP:

On January 30, 1978, the Spokane County Water Quality Committee reviewed the BMP proposed for Spokane County. At that time they established a schedule for community meetings throughout the county.

Eleven community meetings were held from February 16, 1978, through February 27, 1978, to review the proposed BMP and were attended by about 230 local people.

Spokane County
WATER QUALITY COMMITTEE

Membership

| NAME | ADDRESS | BMP AREA | ORGANIZATION OR AREA OF INTEREST | PHONE |
|---------------------|--|-------------|---------------------------------------|----------|
| Allen, Gene | Valleyford, WA 99036 | 1 | Grain Grower | 926-9150 |
| Barton, Don | Rt. 1, Colbert, WA 99005 | 6 | Grain Grower | 466-8657 |
| Byrne, Robert | 4030 E. Trent, Spokane 99292 | - | Conservation District | 534-0555 |
| Carmack, Bruce | Rockford, WA 99030 | 1 | Grass Growers' Assn. | 291-4062 |
| Carstens, Delbert | S. 801 Henry Rd., Greenacres, WA 99016 | 5 | Cattlemen's Assn. | 924-2004 |
| Carstens, George | Rt. 1, Box 49, Reardan, 99029 | 2 | Conservation District | 796-4684 |
| Christensen, Ray | W. 1116 Broadway, Spokane, WA 99201 | - | | |
| Cordill, Nelson | Rt. 1, Cheney, WA 99004 | 2 | Cattlemen's Assn. | 237-4242 |
| Cornwall, Don | Fairfield, WA 99012 | 1 | Grass Growers' Assn. | 291-5011 |
| Dobbins, Glenn | Rt. 2, Cheney, WA 99004 | 2 | Wheat Growers' Assn. | 299-3607 |
| Emery, Karl | E. 25005 Joseph Otis Orchards, WA 99027 | 5 | Crop Improvement Assn. | 226-3291 |
| Emtman, Robert | Rt. 3, Spokane, WA 99203 | 1 | Grain & Grass Grower | 448-9719 |
| Fry, Vernon | Valleyford, WA 99036 | 1 | Grain Grower | 448-2829 |
| Garber, Loren | Latah, WA 99018 | 1 | Grain Grower | 286-3665 |
| Grafmiller, Emerson | Rt. 1, Colbert, WA 99005 | 6 | Grain & Hay Grower | 466-0440 |
| Gunning, Ed | Rt. 2, Deer Park, WA 99006 | 4 | National Farmers' Organization | 276-5421 |
| Hager, George | Elk, WA 99009 | 4 | Conservation District | 292-2204 |
| Hill, Earl | Rosalia, WA 99170 | 3 | Grange | 523-4082 |
| Huffman, George | Rt. 2, Box 9, Deer Park 99006 | 4 | Conservation District | 276-6311 |
| Hulsizer, Eugene | Fairfield, WA 99012 | 1 | Wheat Growers' Assn. | 283-2492 |
| Hyslop, Tom, Sr. | 3407 Columbia Circle Spokane, WA 99205 | 2 | Grain Grower | 325-5872 |
| Jacobson, Herb | Rt. 2, Spokane, WA 99207 | 8 | Grass Growers' Assn. | 926-8625 |
| Kaiser, Verle | Rt. 1, Box 232, Spokane 99204 | - | Conservation District | 448-1552 |
| Kaplan, Lyle | Plaza, WA 99028 | 1 | Grain Grower | 245-3417 |
| Kuhn, Edward | 1414 - 4th St., Cheney 99004 | 2 | Conservation District | 235-4328 |
| Lancaster, Lloyd | Rt. 2, Spokane, WA 99207 | 8 | Grain Grower | 926-1190 |
| Landreth, Quintin | Rt. 1, Reardan, WA 99029 | 2 | County Weed Board | 796-3197 |
| Lederer, Gordon | Rt. 1, Tekoa, WA 99033 | 1 | ASCS Committee (State) | 286-3695 |
| Leitz, Reinhold | Latah, WA 99018 | 1 | Grain Grower | 523-5223 |
| McCoury, Ted | Halfmoon Trailer Court #6 Rt. 1, Box 163, Colbert 99005 | - | County Planning Comm. | 466-2248 |
| McGlade, Jerry | Rt. 1, Mead, WA 99021 | 7 | Orchardist | 238-6877 |
| McKinley, Fred | Rt. 1, Box 255, Cheney 99004 | 2 | Citizen on Taxation | 237-4252 |
| Morrow, Cecil | Rt. 1, Medical Lake, WA 99022 | 2 | Conservation District | 244-3429 |
| Olson, Roy | 4227 N. Wall, Spokane 99205 | - | Interested Citizen | 325-3449 |
| Ostby, Julius | Chattaroy, WA 99003 | 4 | ASCS Committee (County) | 238-6590 |
| Parks, Ken, Jr. | Fairfield, WA 99012 | 1 | Grain & Grass Grower | 283-2170 |
| Peterson, Larry | E. 103 Indiana, Spokane 99207 | - | Dept. of Ecology | 456-2926 |
| Porter, Larry | Deer Park, WA 99006 | 4 | Dairy Herd Improvement Association | 276-6497 |
| Reifenberger, Ralph | Fairfield, WA 99012 | 1 | Grain Grower | 283-2185 |
| Ryan, James | Nine Mile Falls, WA 99026 | 2 | Grain Grower & Cattleman | 796-4882 |
| Schmidt, Robert | Rt. 1, Rosalia, WA 99170 | 3 | Conservation District | 523-4381 |
| Simchuk, Alick | Rt. 4, Spokane, WA 99204 | 2 | Grain Grower | 244-3444 |
| Walsh, Tom | Colbert, WA 99005 | 6 | Grain Grower | 466-2066 |
| Wigen, Kenneth | Rockford, WA 99030 | 1 | Grain Grower | 291-4484 |
| Peterson, Paul | Cooperative Extension Service | - | | 456-3651 |

Spokane County
WATER QUALITY COMMITTEE

Best Management Practices
Area I

Rockford/Fairfield/Latah

Major Soil Series:

Naff silt loam

Precipitation:

20 - 23 inches

Associated Soil Series:

Freeman (Rockford only), Larkin, Caldwell, Dearyton, Palouse, Snow, Latah silt loams. The soils are deep and medium to fine textured.

Major Problems Addressed:

1. Most years there is rapid runoff when the soil is frozen. This generally occurs in midwinter and early spring.
2. Restricted burning of grass seed fields has limited the number of acres in rotation.
3. Hard summer thunderstorms cause severe erosion in isolated areas most summers.
4. Winter and spring erosion is increased by summerfallowing soils that cannot store two years' precipitation.
5. Freeman soils have slow permeability and low fertility. These soils are best suited to sod; other crops provide less soil protection.
6. Excessive tillage speed and over-tillage pulverize soil. (Fairfield only.)

Best Management Practices:

A. Alternative Cropping Sequences

Crops commonly grown are wheat, barley, oats, peas, lentils, Kentucky bluegrass, alfalfa, and field grasses.

1. Annual cropping rotation with limited summerfallow for weed control.

B. Cultural Practices

1. Annual Cropping Tillage Sequence - Fall Grain

Fall tillage (chisel, disk, or moldboard plow), fall cultivation, fertilizing, seeding, with properly timed operations.

2. Tillage For Seeding A Spring Crop

Fall tillage (chisel, disk, or moldboard plow), spring cultivation, fertilizing, seeding, with properly timed operations.

End Product; After a winter wheat crop, tillage operations shall provide a rough soil surface over winter and, depending on soil type or organic condition, provide a minimum clod size of one to two inches in any dimension over a representative 10 percent area of the soil surface.

3. Summerfallow Tillage

Fall tillage (chisel, disk, or moldboard plow), or stubble left standing, spring cultivation, weeding (2 - 4 times), fertilizing, seeding, with properly timed operations.

- a. Preferred seeding date - August 25 to September 25, depending on appropriate moisture.

End Product: At least 20 percent of original crop residue to remain on or near the surface at seeding time.

C. Supporting Practices

- | | |
|------------------------|---|
| 1. Cross slope seeding | 5. Seed critical eroding areas |
| 2. Grassed waterways | 6. Stripcropping or divided slopes |
| 3. Silt ponds | 7. Terraces or diversions |
| 4. Drop Structures | 8. No till seeding (experimental basis) |

D. Burning Policy

The Spokane County Air Pollution Control Authority controls all burning. The Spokane County Conservation District has a no-burning policy on all crop residues except grass residue. Burning of residue from grass seed fields is a coordinated activity.

Spokane County
WATER QUALITY COMMITTEE

Best Management Practices
Area 2

Amber/Cheney/West Deep Creek

Major Soil Series:

Athena silt loam
Hesseltine silt loam,
(gravelly & stony, too)

Precipitation:

16 - 19 inches
(Some farmer records
show as low as 14")

Associated Soil Series:

Reardan silt loam, Lance silt loam, Mondovi silt loam, Cheney silt (gravelly and stony), Uhlig silt loam, Bong and Phoebe sandy loams. The soils in this area make up the hilly, channeled scablands of the western third of the county. The soils vary from moderately deep, medium-textured to shallow to moderately deep gravelly or rocky soils.

Major Problems Addressed:

1. Most years there is rapid runoff when the soil is frozen. This generally occurs in midwinter and early spring.
2. Hard summer thunderstorms cause severe erosion in isolated areas most summers.
3. Excessive tillage speed in the fall is a problem.
4. Winter and spring erosion is increased by summerfallowing soils in the high end of the precipitation belt that cannot store two years' moisture.

Best Management Practices:

A. Alternative Cropping Sequences

Crops commonly grown are wheat, barley, oats, and some alfalfa. Occasionally some peas and grass for seed are grown.

1. Annual cropping rotations with limited summerfallow for weed control.
2. Three-year rotation of winter wheat/spring barley/summerfallow with stubble mulch.
3. Two-year rotation of winter wheat/summerfallow with stubble mulch.

B. Cultural Practices

1. Annual Cropping Tillage Sequence - Fall Grain

Fall tillage (chisel, disk, or moldboard plow), fall cultivation, fertilizing, seeding, with properly timed operations.

2. Tillage For Seeding A Spring Crop

Fall tillage (chisel, disk, or moldboard plow), spring cultivation, fertilizing, seeding, with properly timed operations.

End Product: After a winter wheat crop tillage, operations shall provide a rough soil surface over winter and, depending on soil type or organic condition, provide a minimum clod size of one to two inches in any dimension over a representative 10 percent area of the soil surface.

3. Summerfallow Tillage

Fall tillage (chisel, disk, or moldboard plow), or stubble left standing, spring cultivation, weeding (2 - 4 times), fertilizing, seeding, with properly timed operations.

- a. Preferred seeding dates - August 25 to September 25 (Cheney and West Deep Creek) and August 25 to October 15 (Amber), depending on appropriate moisture.

End Product: At least 20 percent of original crop residue to remain on or near the surface at seeding time.

C. Supporting Practices

- | | |
|------------------------|---|
| 1. Cross slope seeding | 5. Seed critical eroding areas |
| 2. Grassed waterways | 6. Stripcropping or divided slopes |
| 3. Silt ponds | 7. Terraces or diversions |
| 4. Drop structures | 8. No till seeding (experimental basis) |

D. Burning Policy

The Spokane County Air Pollution Control Authority controls all burning. The Spokane County Conservation District has a no-burning policy on all crop residues except grass residue. Burning of residue from grass seed fields is a coordinated activity.

Spokane County
WATER QUALITY COMMITTEE

Best Management Practices
Area 3

Spangle/Plaza

Major Soil Series:

Naff silt loam
Bernhill gravelly, stony, and silt loams

Precipitation:

18 - 20 inches

Associated Soil Series;

Uhlig silt loam, Glenrose silt loam (and gravelly), Lakesol silt loam, Lance silt loam, Caldwell silt loam. The soils vary from deep, medium-textured to shallow and gravelly.

Major Problems Addressed:

1. Most years there is rapid runoff when the soil is frozen. This generally occurs in midwinter and early spring.
2. Hard summer thunderstorms cause severe erosion in isolated areas most summers.
3. Winter and spring erosion is increased by summerfallowing soils that cannot store two years' precipitation.
4. Excessive speed and over-tillage in the fall.

Best Management Practices:

A. Alternative Cropping Sequences

Crops commonly grown are winter wheat, barley, peas, and some legumes.

1. Annual cropping rotation with limited summerfallow for weed control.

B. Cultural Practices

1. Annual Cropping Tillage Sequence - Fall Grain

Fall tillage (chisel, disk, or moldboard plow), fall cultivation, fertilizing, seeding, with properly timed operations.

2. Tillage For Seeding A Spring Crop

Fall tillage (chisel, disk, or moldboard plow), spring cultivation, fertilizing, seeding, with properly timed operations.

End Product: After a winter wheat crop, tillage operations shall provide a rough soil surface over winter and, depending on soil type or organic condition, provide a minimum clod size of one to two inches in any dimension over a representative 10 percent area of the soil surface.

3. Summerfallow Tillage

Fall tillage (chisel, disk, or moldboard plow), or stubble left standing, spring cultivation, weeding (2 - 4 times), fertilizing, seeding, with properly timed operations.

- a. Preferred seeding date - August 25 to September 25, depending on appropriate moisture.

End Product: At least 20 percent of original crop residue to remain on or near the surface at seeding time.

C. Supporting Practices

- | | |
|------------------------|--|
| 1. Cross slope seeding | 5. Seed critical eroding areas |
| 2. Grassed waterways | 6. Stripcropping or divided slopes |
| 3. Silt ponds | 7. Terraces or diversions |
| 4. Drop structures | 8. No tilling seeding (experimental basis) |

D. Burning Policy

The Spokane County Air Pollution Control Authority controls all burning. The Spokane County Conservation District has a no-burning policy on all crop residues except grass residue. Burning of residue from grass seed fields is a coordinated activity.

Spokane County
WATER QUALITY COMMITTEE

Best Management Practices
Area 4

Chattaroy/Deer Park/Elk

Major Soil Series:

Clayton loams and fine sands
Moscow silt loam, Eloika silt loam, Bonner loam
and fine sands

Precipitation:

20 inches plus

Associated Soil Series:

Vassar silt loam, Narcisse silt loam, Hagen sandy loam, Wetthey loamy sands, Bonner silty clay loam. The soils vary from medium-textured to sandy and gravelly. The topography varies from flat, level valleys to steep hills and rough mountains.

Major Problems Addressed:

1. Streambank erosion.) Because these are not dry cropland
2. Overgrazing pastureland.) problems, they are not addressed in the
3. Cultivated cropland has minor erosion problems.) BMP except in supporting practices.
4. Major field draws erode when waterways are worked up the same year that hay and pasture fields are renovated.

Best Management Practices:

A. Alternative Cropping Sequences

Crops commonly grown are wheat, barley, alfalfa, or alfalfa and grass for hay and pasture.

1. Long-term alfalfa and grass or alfalfa or grass as permanent cover with one or two years of small grain re-crop prior to reestablishment.
2. Limited summerfallow is part of the rotation for weed control.

B. Cultural Practices

1. Annual Cropping Tillage Sequence - Fall Grain

Fall tillage (chisel, disk, or moldboard plow), fall cultivation, fertilizing, seeding, with properly timed operations.

2. Tillage For Seeding A Spring Crop

Fall tillage (chisel, disk, or moldboard plow), spring cultivation, fertilizing, seeding, with properly timed operations.

End Product: After a winter wheat crop tillage, operations shall provide a rough soil surface over winter and, depending on soil type or organic condition, provide a minimum clod size of one to two inches in any dimension over a representative 10 percent area of the soil surface.

3. Summerfallow Tillage

Fall tillage (chisel, disk, or moldboard plow), or stubble left standing, spring cultivation, weeding (2 - 4 times), fertilizing, seeding, with properly timed operations.

- a. Preferred seeding date - August 25 to September 25, depending on appropriate moisture.

End Product: At least 20 percent of original crop residue to remain on or near the surface at seeding time.

4. Renovation of Hay and Pasture

- a. Tear-out operation (plow and disk), cultivation, fertilizing, seeding (fall or spring), with properly timed operations.
- b. One or two years in small grain.
- c. Reestablish grass/alfalfa according to No. 2 above.

C. Supporting Practices

1. Dry Cropland

- a. Cross slope seeding
- b. Grassed waterways
- c. All steep slopes and stream corridors will remain in permanent cover
- d. Leave the major draws and maintain them a year or two after the hay and pasture fields are established
- e. Silt ponds
- f. No till seeding (experimental basis only)

2. Stream Cooridors

- a. Controlled grazing
- b. Pumping livestock water away from the creek
- c. Vegetation will be left along draws and creek banks

D. Burning Policy

The Spokane County Air Pollution Control Authority controls all burning. The Spokane County Conservation District has a no-burning policy on all crop residues except grass residue. Burning of residue from grass seed fields is a coordinated activity.

Spokane County
WATER QUALITY COMMITTEE

Best Management Practices
Area 5

Spokane Valley

Major Soil Series:

Garrison gravelly loam
Marble sandy loam

Precipitation:

17 - 19 inches

Associated Soil Series:

Springdale gravelly sandy loam, Bong coarse sandy loam, Clayton fine sandy loam, Phoebe sandy loam. These soils were formed by glacial outwash. They are nearly level to moderately steep terraces excessively drained gravels and stones. Most of the area is rapidly becoming urban with the majority of the agricultural acreage irrigated.

Major Problems Addressed:

1. None

Best Management Practices:

A. Alternative Cropping Sequences

A variety of crops are raised from fruits and berries to truck crops to grain.

1. Any cropping rotation.

B. Cultural Practices

1. All types acceptable.

C. Supporting Practices

1. None needed.

D. Burning Policy

The Spokane County Air Pollution Control Authority controls all burning. The Spokane County Conservation District has a no-burning policy on all crop residues except grass residue. Burning of residue from grass seed fields is a coordinated activity.

Spokane County
WATER QUALITY COMMITTEE

Best Management Practices
Area 6

Halfmoon

Major Soil Series:

Phoebe sandy loam
Clayton loam

Precipitation:

18 - 20 inches

Associated Soil Series:

Snow silt loam, Bong and Phoebe fine sandy loams, Spokane complex, Dearyton silt loams. The soils are mostly sandy and the topography is flat to rolling hills.

Major Problems Addressed:

1. Most years there is rapid runoff when the soil is frozen. This generally occurs in midwinter and early spring.
2. Hard summer thunderstorms cause severe erosion in isolated areas most summers.
3. Winter and spring erosion is increased by summerfallowing soils that cannot store two years' moisture.
4. Excessive speed and over-tillage in the fall.

Best Management Practices:

A. Alternative Cropping Sequences

Crops commonly grown are wheat, barley, oats, peas, lentils, and alfalfa. Some row crops are grown.

1. Annual cropping rotation with limited summerfallow for weed control.

B. Cultural Practices

1. Annual Cropping Tillage Sequence - Fall Grain

Fall tillage (chisel, disk, or moldboard plow), fall cultivation, fertilizing, seeding, with properly timed operations.

2. Tillage For Seeding A Spring Crop

Fall tillage (chisel, disk, or moldboard plow), spring cultivation, fertilizing, seeding, with properly timed operations.

End Product: After a winter wheat crop, tillage operations shall provide a rough soil surface over winter and, depending on soil type or organic condition, provide a minimum clod size of one to two inches in any dimension over a representative 10 percent area of the soil surface.

3. Summerfallow Tillage

Fall tillage (chisel, disk, or moldboard plow), or stubble left standing, spring cultivation, weeding (2 - 4 times), fertilizing, seeding, with properly timed operations.

- a. Preferred seeding date - August 25 to September 25, depending on appropriate moisture.

End Product: At least 20 percent of original crop residue to remain on or near the surface at seeding time.

C. Supporting Practices

- | | |
|------------------------|--|
| 1. Cross slope seeding | 5. Seed critical eroding areas |
| 2. Grassed waterways | 6. Stripcropping or divided slopes |
| 3. Silt ponds | 7. Terraces or diversions |
| 4. Drop structures | 8. No till seeding (experimental basis) |

D. Burning Policy

The Spokane County Air Pollution Control Authority controls all burning. The Spokane County Conservation District has a no-burning policy on all crop residues except grass residue. Burning of residue from grass seed fields is a coordinated activity.

Spokane County
WATER QUALITY COMMITTEE

Best Management Practices
Area 7

Orchard Bluff/Green Bluff
(Orchard Areas)

Major Soil Series:

Bernhill silt loam
Green Bluff silt loam

Precipitation:

19 - 20 inches

Associated Soil Series:

Uhlig, Snow, Cedonia, Lakesol, and Hardesty silt loams. The soils are generally silt loams on nearly level to gently sloping topography.

Major Problems Addressed:

1. Shallow soils with droughty summer conditions.
2. Most years there is rapid runoff when the soil is frozen. This generally occurs in midwinter and early spring.
3. Orchards lacking a cover crop or mulch.
4. Hard summer thunderstorms cause severe erosion in isolated areas most summers.

Best Management Practices:

A. Alternative Cropping Sequences

Crops commonly grown are fruits.

1. Dryland fruit orchards with cover crops.
2. Dryland fruit orchards with mulch.

B. Cultural Practices

1. Subsoil center rows.
2. Spring cultivate fall cover crop.

C. Supporting Practices

1. Grassed waterways.
2. Chemical weed control.

D. Burning Policy

The Spokane County Air Pollution Control Authority controls all burning. The Spokane County Conservation District has a no-burning policy on all crop residues except grass residue. Burning of residue from grass seed fields is a coordinated activity.

Spokane County
WATER QUALITY COMMITTEE

Best Management Practices
Area 8

Pleasant Prairie/Peone Prairie/Foothills
Orchard Bluff/Green Bluff
(Grain Areas)

Major Soil Series:

Bernhill silt loam
Green Bluff silt loam
Snow silt loam

Precipitation:

20 inches plus

Associated Soil Series:

Uhlig, Cedonia, Dearyton silt loams, and Bonner clay loam. These soils are mostly silt loams with nearly bottom land to moderately steep terraces and foothills.

Major Problems Addressed:

1. Most years there is rapid runoff when the soil is frozen. This generally occurs in midwinter and early spring.
2. Hard summer thunderstorms cause severe erosion in isolated areas most summers.
3. Winter and spring erosion is increased by summerfallowing soils that cannot store two years' moisture.
4. Continuous row cropping with low residues result in erosion problems.

Best Management Practices:

A. Alternative Cropping Sequences

Crops commonly raised are grain, peas, lentils, alfalfa, grass seed, and some row crops.

1. Annual cropping rotation with limited summerfallow for weed control.

B. Cultural Practices

1. Annual Cropping Tillage Sequence - Fall Grain

Fall tillage (chisel, disk, or moldboard plow), fall cultivation, fertilizing, seeding, with properly timed operations.

2. Tillage For Seeding A Spring Crop

Fall tillage (chisel, disk, or moldboard plow), spring cultivation, fertilizing, seeding, with properly timed operations.

End Product: After a winter wheat crop tillage, operations shall provide a rough soil surface over winter and, depending on soil type or organic condition, provide a minimum clod size of one to two inches in any dimension over a representative 10 percent area of the soil surface.

3. Summerfallow Tillage

Fall tillage (chisel, disk, or moldboard plow), or stubble left standing, spring cultivation, weeding (2-4 times), fertilizing, seeding, with properly timed operations.

- a. Preferred seeding date - August 25 to September 25, depending on appropriate moisture.

End Product: At least 20 percent of original crop residue to remain on or near the surface at seeding time.

C. Supporting Practices

- | | |
|-------------------------|------------------------------------|
| 1. Cross slope seeding | 6. Seed critical eroding areas |
| 2. Grassed waterways | 7. Stripcropping of divided slopes |
| 3. Silt ponds | 8. Terraces or diversions |
| 4. Drop structures | 9. No till seeding (experimental |
| 5. Double seeding draws | basis) |

D. Burning Policy

The Spokane County Air Pollution Control Authority controls all burning. The Spokane County Conservation District has a no-burning policy on all crop residues except grass residue. Burning of residue from grass seed fields is a coordinated activity.

Spokane County
WATER QUALITY COMMITTEE

Predicted Effect of BMP

Total Number of Producers: 1,740 Total Acres Dry Cropland: 458,000

Predicted effect of BMP: 71 percent Improvement

| <u>Composite of BMP Alternatives for each Tillage Practice</u> | | <u>Acreage Needing BMP</u> | <u>Percentage Improvement</u> |
|---|---------------------------|------------------------------------|-----------------------------------|
| 1. <u>Annual Fall Tillage (fall seed grain):</u> | | 218,000 | 75% |
| <u>Without BMP</u> | <u>BMP</u> | | |
| fall plow | fall disk (heavy) | | |
| light disk | cultivate | | |
| cultivate with harrow | fertilize | | |
| fertilize | seeding | | |
| late seeding | | | |
| Without BMP - Fall seedings are late, crop residues have been completely incorporated into the soil and all clods have been pulverized by untimely and excessive tillage. | | | |
| RESULT: Average annual soil loss equals 20 tons/acre. | | | |
| With BMP - Timely operations and early seedings with a minimum of soil pulverization. | | | |
| RESULT: Average annual soil loss equals 5 tons/acre. | | | |
| 2. <u>Tillage for Spring Crop (3-year rotation):</u> | | 60,000 | 70% |
| <u>Without BMP</u> | <u>BMP</u> | | |
| fall plow grain stubble | fall chisel grain stubble | | |
| spring cultivate | spring c.c. cultivate | | |
| springtooth | rod weed | | |
| rod weed (two times | fertilize | | |
| with harrow) | seed | | |
| fertilize | | | |
| seed | | | |
| Without BMP - Tillage operations are not timely, they are excessive and eliminate residues and pulverize the soil. Fields are seeded without regard to slopes. | | | |
| RESULT: Average annual soil loss equals 23 tons/acre. | | | |
| With BMP - Operations are timely, some supporting practices such as divided slopes or stubble mulch are used and the fields are generally seeded across the slope. | | | |

RESULT: Average annual soil loss equals 7 tons/acre.

3. Summer Fallow Tillage:

60,000

70%

Without BMP

stubble left over winter
spring plow
springtooth with harrow
rod weed (4 times plus)
fertilize
harrow
seed

BMP

fall chisel stubble
spring c.c. cultivate
rod week (2-4 times)
fertilize
seed

Without BMP - Excessive tillage operations pulverize the soil, completely eliminate the residue on the surface, and fields are seeded without regard to slopes.

RESULT: Average annual soil loss equals 30 tons/acre.

With BMP - Operations are timely, some supporting practices are used and seeding is across the slope.

RESULT: Average annual soil loss equals 7 tons/acre.

For Deer Park/Chattaroy/Elk Area: There will only be soil losses on years that the ground is worked up to be reseeded to alfalfa and/or grass.

Spokane County
WATER QUALITY COMMITTEE

| <u>Existing Supporting Practices</u> | <u>Acres Now Protected</u> | <u>Area Needing BMP</u> |
|---|----------------------------|-------------------------|
| Permanently seeding (or plantings) Class IVe and Class VIe land) | 8,000 acres | 75,000 acres |
| Minimum Tillage | 37,000 acres | 375,000 acres |
| Stripcropping or Divided Slope | 7,500 acres | 115,000 acres |
| Terraces | 27 miles | 200 miles |
| Tile Drains | 142 miles | 150 miles |
| Waterways | 200 miles | 400 miles |
| Debris Basins | 39 debris basins | 20,000 debris basins |
| Chiseling | 42,000 acres | 375,000 acres |

BEST MANAGEMENT PRACTICES

FOR

STEVENS COUNTY

INTRODUCTION

Stevens County lies in the Okanogan Highland region in northeastern Washington. It is bounded on the west by the Columbia and Kettle rivers, on the south by the Spokane River, on the north by Canada, and on the east by Pend Oreille and Spokane counties. The geology and soils of the area are complex. Private lands comprise about 60 percent of the county with the remaining 40 percent primarily U.S. Forest Service, Bureau of Land Management, and Washington State Department of Natural Resources controlled. Only nine percent of the county is in a cropland rotation with the balance being in timber and pasture. Of the 140,000 acres of cropland, over 90,000 acres are in forage production for hay or in pasture used for grazing by livestock. This land would have limited sediment loss during most years. During periods of stand renovation, soil losses can occur when perennials are plowed out on an average of once every 8-10 years.

The remaining 50 thousand acres are in small grain production with other uses such as orchards, berries, potatoes or other speciality crops, summer fallow, idle, or land seeded out for conservation purposes. This 50,000 acres amounts to around three percent of Stevens County's land area. Most of this land has little potential of sedimentation loss as grain production takes place on some of the best agricultural soils in the county, which are nearly level soils, found in the valley bottoms.

In effect, by nature of its agriculture, Stevens County does not represent a serious contributor to soil erosion and/or water quality deterioration. The most serious problem is streambank erosion on the Columbia River, resulting from the rapid changes in water depth and flow in connection with Lake Roosevelt operations, and thus not related to agricultural operation.

Stream quality rating is generally high in Stevens County and the area is one of the recreational retreats in the State of Washington. It would be difficult to determine the amount of the three percent of lands annually cropped and summer fallowed in Stevens County which leads to stream deterioration.

Due to the complex nature of the soil types, agricultural practices, rainfall patterns, and geography of the county, it was divided into three farmland descriptions for purposes of designing "best management practices." This format is more workable than the community or area approach. The three designations used are: valley soils, rolling hills, and steeper lands or long slopes.

The Stevens County Conservation District was informed of the 208 planning process and the implications of P.L. 92-500 by the Washington State Conservation Commission. The conservation district decided to proceed in the planning process, following an open meeting which involved outside members from the different commodity organizations and geographical areas of the county. Local input and control was judged to be the best option.

Public meetings were held at six locations throughout the county to gather input for best management practices, (BMP). The input and philosophy gathered at those meetings guided the development of BMP. It is strongly felt that water quality is high in Stevens County and sedimentation from agricultural lands is not a large problem. Any program designed should be under local control and should be a voluntary effort.

STEVENS COUNTY LAND USE

| | | |
|-------------------|---|---|
| Total County Area | - | 1,587,968 Acres - Census |
| | - | 961,000 Acres Private Ownership outside incorporated areas |
| 277,360 Acres | - | All cultivated land past and present and non-treed pasture areas |
| Cultivated Lands | - | 141,359 Acres |
| | | 50,000 Alfalfa and Hay |
| | | 41,623 Grazing Only - Pasture |
| | | 15,000 Summer Fallow, Idle, & Seeded Out |
| | | 30,000 Small Grains |
| | | 5,000 Other |

Application of BMP on dryland cropland is expected to result in water quality improvement of benefit to individual farms. The impact of the dryland BMP on county wide water quality is not likely to be measurable because of the diversity and nature of other land uses which contribute to water quality conditions.

BMP WILL BE REVIEWED ANNUALLY AND REVISED AS NECESSARY.

BEST MANAGEMENT PRACTICES DESIGNATIONS

Stevens County

Best Management Practices - VALLEY SOILS

Precipitation: 15 to 28 inches

Major Soil Series: Colville, Narcisse, Clayton, and Chewelah

Cropping sequence and tillage practices generally do not contribute to soil erosion and sedimentation on these gently sloping valley soils.

Major Problems: Flooding of the valley lands may occur during periods of rapid snow melting, or heavy precipitation. The flood waters originate in the mountainous uplands. The valley lowlands are frequently saturated in the early spring due to high water table conditions.

Best Management Practices:

A. Alternative Cropping Sequences

1. Annual crop production with limited use of summer fallow for control of weeds and crop disease.
2. Perennial crops - Hay or Pasture

B. Alternative Tillage Practices

1. Stubble mulch summer fallow to maintain sufficient residue on and near the soil surface to hold soil in place on portions of fields which may be subject to flood scouring during flood periods.

C. Supporting Practices

1. Establish and maintain streambank vegetation.
2. Maintain vegetation on a buffer zone adjacent to streams subject to bank overflow, or inflow of flood waters.

Stevens County Best Management Practices - ROLLING HILLS

Precipitation: To 25 inches

Major Soil Series: Hodgson, Cedonia, Martella, and Koerling

Major Problems: These soils are located on upland areas usually lying below associated steeper hills and mountain terrain. Rapid snow melt, or summer rainstorm runoff often is concentrated on these fields, particularly in the swales and draws. Erosion transports soils from unprotected slopes and results in deposition of sediment in lower areas.

Best Management Practices:

A. Alternative Cropping Sequences

1. Annual crop production
2. Three-year rotation (winter wheat, spring grain, and fallow)
3. Winter wheat and fallow crop system may be applied on areas receiving less than 15 inches annual precipitation.
4. Hay, or Pasture in rotation with small grains.

B. Alternative Tillage Practices

1. Early fall seeding as soon as soil moisture is adequate.
2. Limit tillage operation to those necessary to control weeds and maintain sufficient residue on and near soil surface at seeding time when summer fallowing.
3. Fall tilled stubble should remain rough over winter or remain standing.

C. Desired Results or End Product

1. Very rough soil surface over winter when annual cropping.
2. Maintain 20 percent of the crop residue raised on and near the soil surface at seeding time when summer fallowing.

D. Supporting Practices

1. Grassed waterways
2. Terracing
3. Double seeding
4. Cross slope farming or divided slopes where feasible.

Stevens County

Best Management Practices - STEEP LANDS OR LONG SLOPES

Precipitation: 16 to 25 inches

Major Soil Series: Stevens, Molcal, Waits, Nevine, Huckleberry, Bonner, Hagen, and Eloika

Major Problems:

Insufficient plant residues, or lack of growing crops for soil protection during high precipitation periods, or rapid snow melting and runoff contribute to soil erosion problems. Runoff waters from upland areas often results in scouring and deposition of sediment along waterways.

Best Management Practices:

A. Alternative Cropping Sequences

1. Winter wheat and fallow
2. Three-year rotation (winter wheat, small grain, and fallow)
3. Hay or pasture in rotation with small grains
4. Permanent pasture

B. Alternative Tillage Practices

1. Fall tilled stubble should remain rough over winter or leave stubble standing.
2. Limit tillage operations to those necessary to control weeds and maintain sufficient residue on the soil surface when summer fallowing.
3. Early fall seeding as soon as soil moisture is adequate to produce sufficient growth of vegetation for soil protection.

C. Desired Results or End Product

1. Very rough soil surface over winter when annual cropping.
2. Maintain 20 percent of the crop residue raised on and near the soil surface at seeding time when summer fallowing.

D. Supporting Practices

1. Grassed waterways
2. Terraces
3. Seed out areas subject to excessive erosion to permanent cover when economically feasible.
4. Cross slope, or contour farming
5. Double seeded waterways and more erosive areas.

Stevens County
WATER QUALITY COMMITTEE
Public Involvement

Water Quality Committee:

The Stevens County Conservation District was informed of the 208 planning process and the implications of P.L. 92-500 by the Washington State Conservation Commission. The conservation district decided upon the planning process following an open meeting which involved outside members from the different commodity organizations and geographical areas of the county. Local input and control was judged to be the best option.

| | |
|---------------|--|
| Jim Cummings | Dairy Federation - Rt. 1, Elk, WA 99009 |
| Paul Hudson | Dairy Federation - Rt. 1, Clayton, WA 99110 |
| Ed Zimmerer | Dairy Federation - Rt. 1, Clayton, WA 99110 |
| Elmer Kegel | NE Washington Farm Forestry Association, Box 363, Colville, WA 99114 |
| Bill Ibentahl | NE Washington Farm Forestry Association, 935 Garden Homes Drive, Colville, WA 99114 |
| Lloyd Henry | Pamona Grange - Aladdin Star Rt., Colville, WA 99114 |
| Len McIrvin | Cattlemen's Association, Laurier, WA 99146 |
| Emmett Smith | Cattlemen's Association, Hunters, WA 99137 |
| Art Ott | Cattlemen's Association, Addy, WA 99101 |
| Marvin Hopp | Stevens County Farmer - Rt. 3, Colville, WA 99114 |
| Wayne Madson | County Extension Agent - P.O. Box 32, Colville, WA 99114 |
| Ron McClellan | SCS District Conservationist - Ag. Service Center, Colville |
| Ken Hafer | Stevens County Conservation District (SCCD) - Rt. 1, Chewelah, WA 99109 |
| Clark Hedrick | SCCD - Rt. 2, Colville, WA 99114 |
| Claude Carr | SCCD - Rt. 2, Rice, WA 99167 |
| Ted Richart | SCCD - Rt. 2, Box 386, Kettle Falls, WA 99141 |
| Wilbur Brooks | SCCD - Rt. 1, Evans, WA 99126 |
| Lewis Lundy | SCCD - Rt. 1, Box 67, Evans, WA 99126 |

Informational Program:

Personal contact among friends and acquaintances of water quality committee members. Telephone calls to inform others of meetings.

News releases were prepared and published in the Statesman-Examiner, Chewelah Independent, and Panorama Advertiser.

Radio spot announcements of meeting times and locations on KCVL. Two three-minute programs about the 208 Water Quality Program were prepared by Wayne Madson and aired on KCVL radio.

Livestock and crop producers were sent a newsletter by County Cooperative Extension Agent, Wayne Madson, informing them of 208 program and community meeting dates.

| <u>Meetings</u> | | |
|------------------|------------------------|-------------------|
| <u>Date</u> | <u>Location</u> | <u>Attendance</u> |
| October 18, 1977 | Fort Colville Grange | 21 |
| 25 | Chewelah | 11 |
| 27 | South Fork Grange | 13 |
| November 1, 1977 | Greenwood Park Grange | 17 |
| 3 | Kettle River Grange | 16 |
| 8 | Williams Valley Grange | 8 |

Questionnaires were provided to attendees and a community farming practices sheet was prepared on an easel, listing alternative practices acceptable to the community.

Best Management Practices Development:

- * Workshop
- * Questionnaire
- * Community Meetings

Public meetings were held for final review of BMP.

| | | |
|-------------------|------------------------|----|
| February 24, 1978 | Greenwood Park Grange | 20 |
| 27 | Valley Grange | 19 |
| March 9 | Colville Valley Grange | 99 |

BMP were reviewed and accepted by the water quality committee on March 16, 1978, and the Stevens County Conservation District on August 3, 1978.

Stevens County

WATER QUALITY COMMITTEE

Total Number of Producers: 1000

Total Acres of Dry Cropland: 40,000 acres each year in grain crop or summer fallow.

Predicted Effect of BMP (without optional practices):

| <u>Composite of BMP Alternatives for Each County Area</u> | <u>Acreage Needing BMP</u> | <u>Percentage Improvement</u> |
|---|--------------------------------|-----------------------------------|
| Valley Soils | 800 acres | 35% |
| Rolling Hills | 1000 acres | 35% |
| Steep lands or long slopes | 2000 acres | 35% |

| <u>Existing Supporting Practices</u> | <u>Acres Now Protected</u> |
|--|----------------------------|
| grass and/or legume with grain in rotation | 36,200 |
| grass and/or legume in long-term rotation | 60,000 |

Walla Walla County
WATER QUALITY COMMITTEE
Public Involvement

Water Quality Committee:

How was the committee established: The Walla Walla County Conservation District Board of Supervisors took the leadership to develop the Walla Walla County Water Quality Committee. Tim Pettyjohn, Chairman of the Board of Supervisors, also served as Chairman of the water quality committee. Interested operators were invited to serve on the committee.

List the committee members and show organization and/or areas represented: Due to the wide climatic variation in Walla Walla County, the water quality committee was divided into three subcommittees, each representing an area with similar farming operations and problems. The basis for dividing the three subcommittee areas was average annual rainfall.

Water quality subcommittee, Dryland, less than 14 inches annual rainfall:

Chairman: Tim Pettyjohn, Rt. 1, Prescott, Washington, farmer and supervisor of Walla Walla County Conservation District

Valley Long, Rt. 1, Prescott, Washington, farmer

Joe Thomas, Rt. 1, Prescott, Washington, farmer

Dean Culbertson, Rt. 1, Prescott, Washington, farmer

Water quality subcommittee, Dryland, 14 to 18 inches annual rainfall:

Chairman: Merrill Camp, Rt. 2, Box 311, Walla Walla, Washington, farmer and supervisor of Walla Walla County Conservation District

Rich Klicker, Rt. 4, Walla Walla, Washington, farmer

Alton Filan, Rt. 1, Waitsburg, Washington, farmer

Bob Lux, Rt. 5, Walla Walla, Washington, farmer

Dale Nelson, Rt. 5, Box 341-A, Walla Walla, Washington, farmer

Walla Walla County
WATER QUALITY COMMITTEE
Public Involvement
Page 2

Water quality subcommittee, Dryland, 18 inches or more annual rainfall:

Chairman: Roy Meiners, 1454 Lowell, Walla Walla, Washington, farmer and supervisor of Walla Walla County Conservation District

James F. Ferrell, Rt. 4, Box 245, Walla Walla, Washington farmer

Gerald Filan, Rt. 4, Walla Walla, Washington, farmer

Robert Kibler, Rt. 1, Box 98, Waitsburg, Washington, farmer

Monty Price, Dixie, Washington, farmer

Informational Program:

Personal Contacts: Personal contacts were made with operators during water quality committee and subcommittee meetings beginning October 4, 1976. These meetings were open to the public. The December 15, 1976 water quality committee meeting alone had 58 people in attendance. Subcommittee chairmen contacted interested farmers in their respective areas by telephone prior to meetings.

News Releases: Most meetings of the water quality committee or subcommittees were announced in the Walla Walla Union-Bulletin prior to the meeting date.

Direct Mail, Letters, and Newsletters: Prior to water quality committee meetings, letters were mailed out to operators urging them to attend. This was a broad-based mailing aimed at a group much larger than the subcommittee membership itself.

Meetings:

| <u>Location</u> | <u>Date</u> | <u>Number Attended</u> | <u>Public Awareness or Input on BMP</u> |
|--------------------------------------|-------------|----------------------------|---|
| Walla Walla, County Service Bldg. | 10-4-76 | 13 | Public Awareness |
| Walla Walla, County Service Bldg. | 12-15-76 | 58 | Public Awareness (Annual SCD meet.) |

Informational Program: Continued

Meetings: Continued

| <u>Location</u> | <u>Date</u> | <u>Number Attended</u> | <u>Public Awareness or Input on BMP</u> |
|--|-------------|----------------------------|---|
| Walla Walla, County Service Bldg. | 1-31-77 | 35 | BMP Input |
| Walla Walla, Mill Cr. Community Hall | 2-1-77 | 32 | BMP Input |
| Walla Walla, Huntington-Cummins Bldg. | 2-2-77 | 6 | BMP Input |
| Prescott, Lions Club Bldg. | 2-10-77 | 25 | BMP Input |
| Walla Walla, County Service Bldg. | 2-18-77 | 15 | BMP Input |
| Walla Walla, Mill Cr. Community Hall | 2-21-77 | 28 | BMP Input |
| Walla Walla, PCA Bldg. | 3-31-77 | 6 | BMP Input |
| Prescott, Lions Club Bldg. | 4-21-77 | 19 | BMP Input |
| Walla Walla, County Services Bldg. | 4-25-77 | 20 | BMP Input |
| Walla Walla, ASCS-SCS Conf. Room | 12-19-77 | 11 | Review DTAC Recommendations |
| Walla Walla, County Services Bldg. | 1-12-78 | 16 | BMP Input and Revision |
| Walla Walla, Mill Cr. Com. Hall | 1-16-78 | 28 | BMP Input and Revision |
| Prescott, Lions Club Bldg. | 1-19-78 | 20 | BMP Input and Revision |

Best Management Practices Development:

Procedure(s) used (Check appropriate boxes):

- ☐ Workshops
- ☒ Questionnaire
- ☒ Community Meetings

Public Review of the BMP:

Method Used: The Walla Walla County Water Quality Committee reviewed the findings of each subcommittee on April 25, 1977 and recommended that the BMP be assembled in an acceptable format and issued for public review. The BMP information was, therefore, assembled and published in total in the June 1977 issue of Conservation Update, the quarterly issued newsletter of the Walla Walla County Conservation District. The total BMP package was presented to DTAC on November 19, 1977 for review. DTAC recommendations were incorporated in subsequent subcommittee meetings held in January 1978.

Number of People Reviewing: Conservation Update has a circulation of approximately 350 landusers. The contents of the newsletter were reviewed by the Board of Supervisors of the Walla Walla County Conservation District prior to printing.

Walla Walla County
WATER QUALITY COMMITTEE
Best Management Practices

Precipitation: 14" or less

Major Soil Series: Ritzville

Associated Soil Series: Ellisforde, Sagemoor, Adkins

Major Problems Addressed: Control of water erosion and the resultant sedimentation on long and/or steep slopes through the use of current tillage equipment, management techniques, and the application of accepted and economically feasible conservation practices.

Best Management Practices:

A. Alternative Cropping Sequences:

1. Grain one year - Fallow one year
2. Three-year rotation (fall grain-spring grain-fallow)

B. Cultural Practices:

1. Spring grain following grain:
 - a. Fall and/or spring disk, cultivate with harrow, fertilize
 - b. Fall chisel, spring disk, fertilize
 - c. Fall chisel, spring cultivate, fertilize
 - d. Standing stubble, spring disk, cultivate, fertilize
 - e. Restricted practice: Moldboard plowing for weed control
2. For stubble to be fallowed:
 - a. Fall and/or spring disk, cultivate, weed (2-4 times). This system will be used for heavy stubble and/or heavy volunteer years.
 - b. Fall disk, spring cultivate, rod weed (2-4 times)
 - c. Fall chisel, spring disk, cultivate, rod weed (2-4 times)
 - d. Fall chisel, cultivate, rod weed (2-4 times)

- e. Spring disk, cultivate, rod weed (2-4 times)
 - f. Restricted practice: Moldboard plowing for weed control
- 3. Contour or cross slope tillage and seeding
- 4. Early seeding on fallow
- C. End Product:
 - 1. Stubble Mulch - The goal is a stubble mulch at seeding time of at least 1,000 pounds per acre but no less than 20 percent of the original residue during a low residue year.
 - 2. No tillage, chemical fallow, seeding into stubble (to be used on an experimental basis).
- D. Supporting Practices:
 - 1. Grass waterways
 - 2. Stripcropping or divided slopes when needed and feasible
 - 3. Diversions (terraces) where feasible
 - 4. Sediment ponds and basins
 - 5. Seed critical erosion areas to permanent vegetative cover
- E. Burning Policy: Burning may be done in small areas only, if approved in accordance with the Tri-County Burning Regulations, only if residue and weeds are more than can be handled by the listed cultural practices. Burning to reduce excess crop residues will be done only after a primary tillage operation.

Walla Walla County
WATER QUALITY COMMITTEE
Best Management Practices

Precipitation: 14" to 18"

Major Soil Series: Walla Walla

Associated Soil Series: Walvan, Onyx, Hermiston

Major Problems Addressed: Control of water erosion and the resultant sedimentation on steep slopes and erosive soils through the use of current tillage equipment, management techniques, and the application of accepted and economically feasible conservation practices.

Best Management Practices:

A. Alternative Cropping Sequences:

1. Grain one year - Fallow one year
2. Three-year rotation (fall grain-spring grain-fallow)
3. Four-year rotation (summer fallow every fourth year)
4. Annual cropping (wheat-barley or wheat-pea)
5. Continuous spring grain on hills with excessive erosion

B. Cultural Practices:

1. Spring grain following grain:
 - a. Fall and/or spring disk, cultivate with harrow, fertilize
 - b. Fall chisel, spring disk or cultivate, fertilize
 - c. Fall plow (maintaining cloddiness), spring disk or cultivate, fertilize
 - d. Standing stubble, spring disk, cultivate, fertilize
2. For stubble to be fallowed:
 - a. Spring disk, cultivate, weed (2-4 times)
 - b. Spring disk, skew tread, weed (2-4 times)
 - c. Fall disk, spring disk, cultivate, weed (2-4 times). This system shall be used only in case of heavy weed infestation, volunteer growth, or for heavy residue yields in excess of 3.5 tons per acre.

- d. Fall chisel, spring cultivate, weed (2-4 times)
 - e. Fall plow, fall cultivate, weed (2-4 times). This system shall be used only for heavy volunteer or weed infestations.
- 3. Seed as early as conditions permit
- 4. Contour or cross slope tillage and seeding
- 5. Minimum tillage - maintain a rough, cloddy seedbed
- C. End Product:
 - 1. Stubble Mulch - The goal is a stubble mulch at seeding time of at least 1,000 pounds per acre, but no less than 20 percent of the original residue during a low yield year.
 - 2. No tillage, chemical fallow, seeding into stubble (to be used on an experimental basis).
- D. Supporting Practices:
 - 1. Terraces on long slopes where feasible
 - 2. Stripcropping or divided slopes on steep or long slopes
 - 3. Grass waterways
 - 4. Sediment ponds or basins
 - 5. Seed critical erosion areas to permanent vegetative cover
 - 6. Drop spillways
 - 7. Fertilization based on soil test
- E. Burning Policy: Burning may be done in small areas only, if approved in accordance with the Tri-County Burning Regulations, only if residue and weeds are more than can be handled by the listed cultural practices. Burning to reduce excess crop residues will be done only after a primary tillage operation.

Walla Walla County
WATER QUALITY COMMITTEE
Best Management Practices

Precipitation: 18" or more

Major Soil Series: Athena

Associated Soil Series: Palouse, Snow

Major Problems Addressed: Control of water erosion and the resultant sedimentation from long and/or steep slopes seeded to fall grain through the use of current tillage equipment, management techniques, and the application of accepted and economically feasible conservation practices.

Best Management Practices:

A. Alternative Cropping Sequences:

1. Annual Cropping
 - a. Grain after grain
 - b. Grain after legumes
 - c. Green manure after grain or legumes
 - d. Winter grain, spring grain, peas
2. Grass after grain or legumes

B. Cultural Practices:

1. Fall wheat following peas - approved methods to obtain minimum tillage (no more than four tillage operations):
 - a. Chisel, fertilize, seed, cross slope springtooth
 - b. Moldboard plow (maintaining cloddiness), fertilize, seed, cross slope springtooth
 - c. Disk, fertilize, seed, cross slope springtooth

Note: The seeding operation may follow the springtooth in some areas.
2. Fall grain on grain (no more than five tillage operations):
 - a. Disk, chisel, springtooth, fertilize, seed

3. Tillage for seeding spring crops: If fall tillage is used on ground planned for spring cropping, an overwinter cover of at least 1,000 pounds per acre, but no less than 20 percent of the original residue yield will be maintained. Weather and soil conditions are so varied that predictions of tillage sequences needed to prepare spring seedbeds cannot be made.

4. Contour or cross slope tillage and seeding

5. Timing of practices

C. End Product:

1. The goal for fall grain is a seedbed with prominent, small to moderate sized individual clods.
2. No tillage seeding following peas, into chemical fallow or into stubble (to be used on an experimental basis).

D. Supporting Practices:

1. Terraces on long slopes where feasible
2. Stripcropping or divided slopes
3. Grass waterways
4. Sediment ponds or basins
5. Seed critical erosion areas with permanent vegetative cover

E. Burning Policy: Burning may be done in small areas only, if approved in accordance with the Tri-County Burning Regulations, only if residue and weeds are more than can be handled by the listed cultural practices. Burning to reduce excess crop residues will be done only after a primary tillage operation.

Walla Walla County

WATER QUALITY COMMITTEE

Best Management Practices

All Precipitation Zones

Practices to be Retained for the Future Out of Necessity:

1. Fertilization necessary for an economic return.
2. Continued use of chemicals for weed control.
3. Intermittent summer fallow for weed control or as needed during dry cycles.
4. Continued use of the moldboard plow.
5. Continue to allow livestock grazing.

Incentives for Using Best Management Practices:

1. High cost-share payments for "best management practices."
2. Acres in conservation practices shall be included in the wheat allotment base.
3. A crop from a good proven conservation program should have a proven yield factor.
4. Economics of returns will regulate pollution control.
5. Low interest loans should be made available to operators implementing BMP.
6. In the 18-inch plus rainfall area, it is recommended that operators be exempt from any mandatory set-aside acres if production controls go into effect, since annual cropping is considered to be the most effective and economical means of erosion control in this rainfall area.
7. Research is needed to develop an effective chemical registered for use on wheat for the control of cheatgrass and rye. This would not only help alleviate the burning of wheat stubble, it would also allow greater use of the chisel in the low and intermediate rainfall zones and, therefore, result in higher residue rates and less erosion.

WATER QUALITY COMMITTEE

Division of Walla Walla County by Precipitation Zones (see attached map):

1. 14 inches or less annual precipitation
2. 14 to 18 inches annual precipitation
3. 18 inches or more annual precipitation

Total Number of Producers:

In Walla Walla County, there are approximately 890 farm operators representing 1,100 to 1,200 total farm units. There are between 2,000 to 2,100 producers (including all owners and operators) which gives an indication of our problem with absentee ownership. In the dryland area, there are approximately 600 to 625 dryland commercial wheat farms.

Total Acres of Dry Cropland:

There are approximately 580,000 acres of dry cropland in Walla Walla County.

Predicted Effect of BMP:

| Composite of BMP Alternatives for Each County Area | *Acreage Needing BMP | Percentage Improvement |
|--|-------------------------|--|
| 14 inches or less | 100,000 | 52% with stubble mulch of 1,000 to 1,500 pounds per acre; 62% with stubble mulch and divided slopes |
| 14 to 18 inches | 50,000 | 68% with stubble mulch of 1,500 to 2,000 pounds per acre; 79% with stubble mulch and stripcropping |
| 18 inches or more | 40,000 | 30% with divided slopes; 33% with stripcropping; 24% with terraces |

*Acreages listed as needing BMP are very broad estimates.

INTRODUCTION

Orientation about Public Law 92-500 in Whitman County began in 1973. The Whitman County Rural Development Committee and the Whitman County Conservation District became concerned about PL 92-500 following its enactment in 1972. Joint meetings were held where representatives of the Department of Ecology (DOE) explained the Law and policy being developed by the Environmental Protection Agency (EPA) and DOE. The Whitman County Conservation Districts Council organized the Whitman County Water Quality Committee.

A symposium was sponsored by the committee in January 1974, and each year thereafter, to acquaint all citizens with PL 92-500 and its effects in the future. A list of persons involved in the Whitman County Water Quality Committee is attached.

Whitman County Water Quality Committee
Mailing List and Membership

| Name | Address | Phone | Zip | Organization Representing |
|---------------------|----------------------------|----------------|-------|--|
| Henry Suess | Colfax | 397-3194 | 99111 | Wool Growers |
| Ray Meyer | Colfax | 397-3401 | 99111 | Extension Service |
| Felix Entenmann | Colfax | 397-3401 | 99111 | Extension Service |
| Bill Wagner | Garfield | 332-7751 | 99130 | |
| Ron Wachter | Pullman | 332-2674 | 99163 | Palouse Producers |
| Ben Glorfield | St. John | 648-3419 | 99171 | Whitman County Growers |
| Tracy Eriksen | Rt. 2, St. John | 648-3362 | 99171 | National Farmers Organiza- tion |
| Dale Smick | Endicott | 657-3403 | 99125 | ASCS |
| Dennis Roe | Colfax | 397-2882 | 99111 | SCS |
| Pat (Harold) Hatley | 305 Arbor, Pullman | 564-5021 | 99163 | Palouse CD (Chairman) |
| Don Quist | Rt. 1, Box 94, Pullman | (208) 882-3170 | 99163 | Palouse CD |
| August Luft | Endicott | 657-3306 | 99125 | Whitman Council Chairman (Whitman CD) |
| Rodney Bertramson | Johnson Hall, WSU, Pullman | 564-8841 | 99163 | Sierra Club |
| Stewart Pfaff | Garfield | 635-2843 | 99130 | Pea and Lentil Association |
| Elmore Bush | N. 202 Mill, Colfax | 397-3475 | 99111 | WACD - Bankers & Business |
| Les Mills | Lacrosse | 549-3597 | 99143 | Aerial Application Co's |

Whitman County Water Quality Committee
Mailing List and Membership (continued)

| <u>Name</u> | <u>Address</u> | <u>Phone</u> | <u>Zip</u> | <u>Organization Representing</u> |
|-------------------|------------------------|--------------|------------|--------------------------------------|
| Curtis White | St. John | 648-3361 | 99171 | Palouse-Rock Lake CD (Chairman) |
| Mark Tollett | Thornton | 478-2961 | 99176 | Pine Creek CD |
| Elmer Blackman | Rt. 2, Rosalia | 569-3165 | 99170 | Pine Creek CD |
| Bill Evans | Rt. 1, Lacrosse | 549-3978 | 99143 | Farm Bureau - Past Pres. |
| Burt Lehn | Farmington | 287-2026 | 99128 | Wheat Growers |
| Randy Scholz | Colfax | 397-3320 | 99111 | AAUW |
| Clyde Willsey | Colfax | 397-2721 | 99111 | Palouse CD & Pomona Grange |
| David Morgan | Rt. 3, Colfax | 397-3367 | 99111 | Cattlemen's Association |
| Larry Lothspeich | Colfax | 397-3791 | 99111 | Port of Whitman |
| Kenneth Miller | Rt. 1, Thornton | 648-3448 | 99176 | |
| Greg Schmick | Rt. 3, Colfax | 397-4087 | 99111 | |
| Gordon Hill | Rt. 1, Palouse | 397-3318 | 99161 | |
| Earl Crowe | Farmington | 287-2131 | 99128 | |
| Gerald Mitchell | 618 Valleyview, Colfax | 397-3093 | 99111 | |
| Fred Johnson, Jr. | Pine City | 569-3380 | 99149 | |
| Ralph Thursby | Thornton | 478-3468 | 99176 | |

Whitman County Water Quality Committee
Mailing List and Membership (continued)

| Name | Address | Phone | Zip | Organization Representing |
|-----------------|-------------------------------------|----------|-------|------------------------------|
| Eugene Prince | Thornton | 478-3911 | 99176 | |
| John Hester | Thornton | 478-3981 | 99176 | |
| Gale Allen | Colfax | 397-3681 | 99111 | Regional Planning Com. |
| Howard Powell | W. 209 Wall, Colfax | 397-2989 | 99111 | DOE |
| William Burwell | E. 103 Indiana, Spokane | | 99206 | DOE |
| George Druffel | Colton | 229-3850 | 99113 | |
| Dan Druffel | Colton | 229-3850 | 99113 | |
| Judy Hensle | Rt. 1, Palouse | 397-4065 | 99161 | Women'a AAUW |
| Marcus Stueckle | Lacrosse | 397-4040 | 99163 | Cattlemen's Association |
| John Howell | Rt. 1, Box 311, Pullman | | 99163 | |
| Allen Pettibone | Smith Lab, Room 205, WSU Pullman | 335-3244 | | |
| Dan St. John | Oakesdale | | 99158 | |
| Dale DeChenne | St. John | 648-3651 | 99171 | Palouse-Rock Lake CD |
| Dennis Smith | St. John | 648-3732 | 99171 | |
| Rudy Claassen | Lacrosse | 397-3638 | 99143 | |

Whitman County Water Quality Committee
Mailing List and Membership (continued)

| Name | Address | Phone | Zip | Organization Representing |
|--------------------------|--|----------|-------|---|
| Jerry Druffel | Rt. 1, Uniontown | | 99179 | |
| Dan Wolf | Uniontown | | 99179 | |
| Don McCool | Dept. of Eng., Smith Bldg. Pullman | | 99164 | ARS, Ag. Research Division |
| Carl Engle | WSU, Pullman | | 99164 | Extension Service |
| Walt Swannack | Lamont | 257-2629 | 99017 | |
| Lucy Kittrick | N.W. 464 Orion Drive, Pullman | 332-3378 | 99163 | League of Women Voters |
| Norbert Bochsler | P.O. Box 7, Ephrata | | 98823 | Department of Natural Resources |
| Ron Brightman | 202 Neil Hall, Pullman | | 99164 | Sierra Club |
| Dr. Irvin Buss | N.E. 1145 Orchard Dr., Pullman | | 99163 | Audobon Society |
| Richard Swantz | N.W. 380 Thomas, Pullman | | 99163 | Whitman County Sportsman's Association |
| Janet Welch | Box 2615 C.S., Pullman | 332-8501 | 99164 | WSU Environmental Task Force |
| Ronald E. Hermanson, PhD | Extension Ag. Engineer, Waste Management, Dept. of Ag. Engineering, WSU, Pullman | | 99164 | Extension Service |
| Earl Swift | Lamont | | 99017 | |
| Wilfred L. Becker | Box 35, Lamont | | 99017 | |
| Ron Dube | Rosalia | | 99170 | |

Whitman County Water Quality Committee
Mailing List and Membership (continued)

| Name | Address | Phone | Zip | Organization Representing |
|----------------|-----------------------|-------|-------|------------------------------|
| Ken Meyer | Rt. 1, Box 13, Colton | | 99113 | |
| Jim Druffel | Box 111, Uniontown | | 99179 | |
| Dennis Pittman | Oakesdale | | 99158 | |
| Shann Hartley | Box 18, Uniontown | | 99179 | |

County Newspapers (countywide)

| | |
|-------------------------|-----------------------------|
| St. John Advocate | Palouse, % Palouse Republic |
| Citizens Journal | Rosalia |
| Palouse Republic | Palouse |
| Pullman Herald | S. 410 Grand Ave., Pullman |
| Colfax Gazette | |
| Tekoa Standard Register | |

Whitman County

Best Management Practices Development

Citizen Involvement

In November 1976, the Whitman County Water Quality Committee initiated action to have community subcommittee meetings to seek citizen input for best management practices development. Representatives of the four conservation districts in the Whitman County Water Quality Committee agreed to sponsor approximately 12 community meetings throughout Whitman County. The first meeting was held on December 9, 1976 and the last one was held on January 26, 1977. The dates, locations, and attendance are as follows:

| <u>Date</u> | <u>Location</u> | <u>Attendance</u> |
|-------------|------------------------|-------------------|
| December 9 | Dusty | 36 |
| 16 | Colfax | 5 |
| 16 | Rosalia | 49 |
| 17 | Tekoa | 31 |
| January 6 | Ewan | 36 |
| 7 | Tekoa | 31 |
| 11 | St. John | 36 |
| 14 | Tekoa | 5 |
| 18 | Colton | 52 |
| 21 | N. & S. Palouse Grange | 20 |
| 21 | Pullman | 20 |
| 26 | Pullman | 20 |

Several means of notifying all citizens were used to announce the meetings. A grant to the Whitman Conservation District and the water quality committee and voluntary labor from conservation district supervisors, water quality committee members, League of Women Voters members, Soil Conservation Service (SCS) members, and Extension Service people provided the resources to reach the people.

On December 9, 1976, the Whitman Conservation District sponsored a community meeting at the Dusty Gun Club at Dusty. Members of the Whitman Conservation District board each called 10 or more persons. Announcements of the meeting were made twice over Radio KCLX, and once in the Colfax Gazette. Attendance was 36 producers and 2 persons from SCS. The slide talk "Water Quality - It's Your Turn," was shown followed by a discussion about how citizens will be involved in 208 planning. Worksheets were distributed, which producers completed; and consensus of cropping sequences, tillage, and other practices that reduce erosion were identified in small groups of 10 to 15 producers for the communities of Dusty, Union Flat, Hay, and Lacrosse.

On December 16, two meetings were held, one near Colfax and one in Rosalia. The one meeting at Colfax was called by Whitman Conservation District Supervisor, Don Doty. He called 10 producers and 5 participated.

Two persons from the SCS were present. An orientation presentation was made by an SCS person first, followed by a general discussion about 208 planning involvement. Worksheets were completed by the producers, and a consensus was developed of what crop sequences, tillage, and other practices will reduce sediment.

Also on December 16, was a meeting at Rosalia City Hall. A paid advertisement was placed in the Rosalia Citizens Journal early to announce that a meeting was planned. Then flyers were placed in windows of businesses in Rosalia. The meeting was organized by Pine Creek Conservation District supervisors Elmer Blackman and Mark Tollett. They telephoned 125 persons. A record of those responding favorable to attend the meeting was kept, along with those who had noticed the newspaper ads. Approximately 70 percent of those called indicated they would attend the meeting, and approximately 25 percent had seen the newspaper ads. Attendance of producers was 49 and attendance of others included 2 Extension Service persons.

Pine Creek Conservation District Supervisor Dan St. John arranged for a meeting on December 17, at the Tekoa Community Building in Tekoa. A paid advertisement was placed in the Tekoa Standard-Register announcing plans were being made for the meeting, and flyers were distributed throughout businesses in Tekoa. Dan called 52 persons. Attendance at the meeting was 31 producers and 1 each from SCS and Extension Service. A slide talk on orientation about 208 planning was presented. A discussion about the impact of 208 planning followed. Some of the questions asked were: "What would happen if we did nothing?" and "Do we really have a problem?" Explanation by Extension Service and SCS persons followed. Worksheets were distributed and producers developed a consensus of what crop sequences, tillage, and other practices will reduce sediment.

Palouse-Rock Lake Conservation District Supervisor Dale DeChenne arranged a community meeting at Eaton Grange Hall in Ewan on January 6, 1977. The meeting was announced three times over Radio KHQ and Radio KCLX. Telephone calls announcing the meeting were made to 56 producers. Flyers announcing the meeting were placed in businesses in St. John. Attendance at the meeting was 36 producers and 1 person from SCS.

An orientation presentation was provided to the group and a discussion of 208 planning involvement. A question was raised about what would constitute economic feasibility. Producers' testimony would be the criteria. Worksheets were distributed and a consensus of crop sequences, tillage, and other practices that would reduce erosion were identified for Lamont, Ewan, St. John, and Pine City communities.

Dennis Pittman of Pine Creek Conservation District arranged a community meeting on January 7, at the Fraternal Hall in Oakesdale. The meeting was announced 3 times over Radio KCLX. Flyers were placed in businesses in Oakesdale. Telephone calls announcing the meeting were made to 55 producers. Eight of those 55 were unable to be reached. Of the 55, 43 made a commitment to attend. Attendance was 31 producers, 2 Extension Service persons, and 2 SCS employees.

An orientation presentation was provided to the group and a discussion of 208 planning followed. Worksheets were distributed and completed, and a consensus of crop sequences, tillage, and other practices that would reduce erosion was identified with small groups of 8 to 10 persons.

Dale DeChenne of Palouse-Rock Lake Conservation District also arranged for a community meeting on January 11, at Wheatland Grange Hall near St. John. The meeting was announced three times each over radios KCLX and KHQ. A paid advertisement was placed in the Colfax Gazette and St. John Advocate. Then flyers were placed in businesses in St. John. Telephone calls announcing the meeting were made to 56 producers. Attendance at the meeting was 36 producers and 1 person from SCS.

An orientation presentation was provided to the group and a discussion of 208 planning involvement followed. Worksheets were distributed and completed, and a consensus of crop sequences, tillage, and other practices that would reduce erosion in Lamont, St. John, Pine City, and Steptoe communities was identified.

Dan St. John of Pine Creek Conservation District arranged a special follow-up meeting at Tekoa on January 14, to help develop economic feasibility information. Eight producers who attended the December 17 meeting in Tekoa were called. Five producers attended, along with 2 persons from Extension Service and 1 person from SCS. An Extension Economist from Washington State University interviewed the producers about economics of proposed BMP developed at Tekoa on December 17, 1976.

Palouse Conservation District Supervisor Mike Druffel arranged for a community meeting at Colton on January 18. The meeting was preceded with a meeting of Colton Grange. Then the meeting was opened to the public at 9:00 p.m. Attendance during the open community meeting was 52 producers and 1 SCS person. The meeting was announced twice in the Spokane Daily Chronicle that circulates throughout the area. The meeting was announced over radio stations KCLX and KWSU.

A slide presentation on orientation about 208 planning was shown. Worksheets were distributed to the producers present. A consensus was developed among those present about the practices that would reduce erosion and meet the criteria of BMP.

Palouse Conservation District supervisors Neil VanTine, Clyde Willsey, and Charles Weber arranged a community meeting at North and South Palouse Grange Hall between Colfax and Palouse on January 21. A paid advertisement of the meeting was placed in the Colfax Gazette to announce the meeting. The meeting was announced three times over Radio KCLX. The meeting was announced to the grange members beforehand also. Attendance at the meeting was 20 producers, 2 Extension Service persons, and 2 SCS employees.

A slide show on 208 planning orientation was shown. Worksheets were distributed and groups of 8 to 10 producers developed proposed BMP. Then a consensus of the proposed BMP was developed among the group following completion of the worksheets.

Palouse Conservation District Chairman Harold Hatley and Supervisor Don Quist arranged for a meeting on development of BMP at the Whelan Grange Hall, north of Pullman on January 21. The meeting was announced to members of Whelan Grange. A slide presentation on orientation for 208 planning was shown. Worksheets were distributed and a consensus of practices that would reduce erosion and meet criteria of BMP was developed.

Palouse Conservation District Chairman Harold Hatley arranged for a community meeting at Pullman on January 26, at the Lincoln Savings Bank meeting room. The meeting was announced over radio stations KCLX and KWSU. Members of the League of Women Voters called the farmers in the Pullman area to notify them. League of Women Voters members also arranged for advertisements of the meeting in the Pullman Herald. Attendance at the meeting was 20 producers and 1 SCS person.

A slide show on orientation about 208 planning was shown. A discussion about 208 planning and development of BMP began, but little progress was made at this particular meeting. A few persons who were present raised questions about what kind of implementation would result. Worksheets were distributed, and those present were requested to complete the worksheets and return them to the water quality committee. Two were received.

Possible improvement of progress was discussed with the League of Women Voters members following the meeting. Such possibilities as an afternoon meeting and having refreshments available might create a more relaxed atmosphere.

An open, countywide meeting called a symposium was arranged by Whitman Conservation District Supervisor August Luft, at the fairgrounds near Colfax, on January 28. Orientation about 208 planning was provided in the morning session. In the afternoon, 18 producers participated in a panel discussion about use of practices identified as proposed BMP at previous meetings. Approximately 150 producers attended the day-long meeting.

The BMP for Whitman County were adopted on February 7, 1977 from the material gathered at the 13 meetings held to seek citizen input in Whitman County. Soil loss estimates have been developed by the Conservation Commission Dryland Specialist.

WHITMAN COUNTY

Explanation of various aspects of proposed best management practices.

1. Summer Fallow

Summer fallow is a prepared seedbed left unseeded, kept free of weeds during the summer, and seeded in the fall. It is a condition on which control of erosion is most difficult. Citizens participating in community workshops where BMP were developed agreed to various practices they will use to reduce erosion on summer fallow. Two important ones were seeding the fallow early in the fall and maintaining straw and other residue on the surface. Fallow is necessary for moisture conservation in western Whitman County, for the control of weeds not controllable with herbicides in eastern Whitman County, and for foundation seed production.

2. Burning of Excessive Residue

Utilization of straw and other residue in seedbed preparation is important to reduce erosion. Producers are unable to utilize all residue in certain areas when it is too excessive for equipment operation for seedbed preparation and weed control. The Whitman County citizens participating in development of BMP agreed to certain limitations and restrictions of burning whenever it is necessary and no other means is available to the producer for his circumstances.

The Whitman County commissioners and DOE require burning permits whenever burning will exceed one acre.

3. Tillage by Plowing

Plowing can sometimes be too severe, causing erosion later. The Whitman County citizens agreed to limit the use of the moldboard plow to certain situations that would reduce erosion from that occurring with general use of the moldboard plow.

4. Fertilizer Use

Fertilizer is important for growth of adequate straw and other residue to reduce erosion when a seedbed is prepared for the next crop. Fertilizer use was agreed to be kept to the minimum necessary to grow an optimum crop yield. Fertilizer cost causes producers not to waste it through excessive rates.

Whitman County

WATER QUALITY COMMITTEE

Best Management Practices

Rainfall: Less than 15 inches annually

Major Soil Series: Walla Walla silt loam

Associated Soil Series: Onyx silt loam, Hermiston silt loam, Risbeck silt loam, Chard silt loam

Major Problems:

Annual precipitation in this area is limited; this results in each producer using summer fallow on at least one-third of the land. Major soil erosion problem is the disappearance of straw residue and the limited amount of plant cover on the surface of summer fallow land during the occurrence of winter storms. Excessive moisture, rain and/or fast-melting snow occurring while the soil is frozen causes most of the erosion. Lesser amounts of erosion occur during cloudbursts in the summer on steep slopes, shallow soils and long slopes; exposed subsoil is another factor contributing to the loss of soil.

Best Management Practices:

A. Alternative Cropping Sequences

1. Annual Cropping:
Wheat and/or barley
2. Four-Year Rotation:
Winter wheat
Spring crop two years
Summer fallow
3. Three-Year Rotation:
Winter Wheat
Spring barley
Summer fallow
4. Grain and Summer Fallow with Supporting Practices:

Best Management Practices are based on the occurrence of average monthly precipitation and temperature in the preceding months of the crop year and they are not designed to be effective during periods of unusual moisture and temperature conditions.

B. Alternative Tillage Practices

1. Stubble mulch, using chisel or disk, for summer fallow.

Seed summer fallow early, September 15, or earlier unless weather is abnormal.

2. Use minimum tillage; shred stubble where stubble is too heavy for tillage.
3. Areas to be cultivated: Limit burning of stubble to small areas preceded by disking or other tillage. Stubble should be greater than 3 tons per acre.

C. Optional Practices to Support Cropping and Tillage Sequences

These practices are to correct gullies, certain long slopes, and other specific erosion problems related to local topography, soil, and climate.

1. Divided slope farming.
2. Stripcropping, level terraces, diversion terraces, drop structures, sediment dams, grass waterways.
3. Use soil tests as a correct guide to fertilization.
4. Seed permanent grass and alfalfa on slopes where erosion cannot be controlled by any other method.

Whitman County

WATER QUALITY COMMITTEE

Best Management Practices

Rainfall: 15 to 19 inches annually

Major Soil Series: Athena silt loam, Calouse silt loam

Associated Soil Series: Cavello silt loam, Lance silt loam

Major Problems:

Annual precipitation is limited some years; this causes some producers to maintain summer fallow on about one-fifth of the land. Major soil erosion problems are the disappearance of straw residue and the limited plant cover on the surface of summer fallow land during period of winter storms. Disappearance of aggregates (clods) and residue on seedbeds prepared for fall seeding following peas or grain the same year likewise contributes to increased erosion problems. Excessive moisture, rain and/or fast-melting snow, occurring on frozen soil is responsible for much of the erosion. Steep topography, shallow soils, long slopes, drifting snow, exposed subsoil, and decreased organic matter are other factors contributing to soil loss.

Best Management Practices:

A. Alternative Cropping Sequences

1. Annual Cropping:
Wheat and barley
2. Four-Year Rotation:
Winter wheat
Spring crop two years
Summer fallow
3. Three-Year Rotation:
Winter wheat
Spring barley
Summer fallow
4. Grain and Summer Fallow with Supporting Practices:

Best Management Practices are based on the occurrence of average monthly precipitation and temperature in the preceding months of the crop year and they are not designed to be effective during periods of unusual moisture and temperature conditions.

B. Alternative Tillage Practices

1. For recropping or annual cropping only:

Disk soon after harvest, chisel later in fall for spring grain.
Use cultivator and harrow in spring.

Shred heavy stubble areas, plow where stubble is too heavy to till otherwise.

Limit tillage after plow to cultivator.

2. For stubble to be summer fallowed:

Fall chisel, cultivate in spring, rodweed 2 or 3 times, early seed.

If plow is used, plow spring only; leave stubble for over-winter protection.

For hills where erosion on summer fallow is excessive, use continuous spring grain.

3. Seed summer fallow early, September 15, or earlier, unless weather is abnormal.

C. Optional Practices to Support Cropping and Tillage Sequences

These practices are to correct gullies, certain long slopes, and other specific erosion problems related to local topography, soil, and climate.

- | | |
|--|---|
| 1. Divided slope farming | 6. Drop spillways |
| 2. Stripcropping on long hillsides | 7. Terraces |
| 3. Grass waterways | 8. Soil test to guide fertilizer use |
| 4. Hillside grass seedings (steep shallow, eroded land not otherwise controllable) | 9. Limit burning to small areas, preceded by tillage with greater than 3 tons per acre of stubble |
| 5. Sediment retention dams | 10. No-till on experimental basis |

Whitman County

WATER QUALITY COMMITTEE

Best Management Practices

Rainfall: More than 19 inches annually

Major Soil Series: Palouse silt loam, Thatuna silt loam, Naff silt loam, Garfield silt loam

Associated Soil Series: Latah silt loam, Caldwell silt loam, Tekoa silt loam, Schumacher silt loam

Major Problems:

Major soil problem is the disappearance of aggregates (clods) and crop residue on fall-seeded crops which leaves little or no soil surface protection during winter storms. These factors contribute to excessive soil runoff from the limited amounts of summer fallow land in this area. Winter storms, rain and/or excessive snowmelt, occurring on frozen ground causes most of the erosion. Exposed subsoil, snow drifts, steep topography, shallow soils, long slopes, and decreased organic matter are other factors contributing to soil loss.

Best Management Practices:

A. Alternative Cropping Sequences

1. Annual Cropping:

Continuous winter wheat
Continuous spring wheat
Continuous grain and peas or lentils
Grass for seed production in rotation with grain
Grain 2 to 4 years and peas or lentils 1 year
Grass and alfalfa 2 to 3 years and grain and lentils 3 years
Alfalfa and grass

Best Management Practices are based on the occurrence of average monthly precipitation and temperature in the preceding months of the crop year and they are not designed to be effective during periods of unusual moisture and temperature conditions.

B. Alternative Tillage Practices

1. For continuous grain:

Fall plow or chisel; for initial tillage scatter straw with harrow; limit plow to heavy stubble only. Dry fall only pack to break large clods.

2. For annual cropping wheat after spring crop:

No-till, fertilize, and seed if weeds are not a problem.

3. For annual cropping peas and/or lentils after grain:

Fall plow or chisel (precede with heavy disk in heavy stubble areas), where possible plow uphill.

4. For annual cropping wheat after peas or lentils:

Use chisel type implements (disk when fall is dry), fertilize and seed, limit rodweeding to only where weeds are present.

5. For grass or grass and alfalfa:

Prepare a shallow seedbed and pack well to make seedbed firm and to control weeds and insects.

C. Optional Practices to Support Cropping and Tillage Sequences

- | | |
|---|---|
| 1. Divided slope farming | 10. Seed permanent grass and alfalfa on slopes where erosion is not otherwise controllable. |
| 2. Stripcropping on long slopes | |
| 3. Grass waterways | 11. No-till on experimental basis |
| 4. Sediment retention dams | |
| 5. Sediment catching structures | 12. Limit summer fallow to weeds not otherwise controllable, no oftener than once each 6 years or for pedigree seed production. |
| 6. Diversions | |
| 7. Contour farming | 13. Control burn grass seed fields and grass waterways |
| 8. Drainage of wet areas | |
| 9. Use continuous spring grain on problem hills where erosion is uncontrollable with any other practice or crop sequence. | 14. Limit burning of stubble to small areas with greater than 3 tons per acre of stubble or greater than 60 bushels per acre stubble. |

SOIL LOSS ESTIMATES
WITH BEST MANAGEMENT PRACTICES

Whitman County - less than 15 inch rainfall

| Crop Sequences | Tillage Alternatives | Average Annual Soil Loss Estimate Tons/Acre |
|-------------------------------------|--|--|
| Grain & Fallow | Alternative 1 | 4.3 |
| C.13 | Chisel - fall Cultivate all land once Harrow once Fertilize Rodweed (3) times Seed before Sept. 10 | |
| | Alternative 2 | 6.7 |
| | Disk - fall Disk heavy stubble (IIe & IIc land) again in spring Harrow once Fertilize Rodweed (3) times Seed before Sept. 10 | |
| Annual Cropping: | Alternative 1 | 2.0 |
| Continuous Spring Barley C.06 | Chisel - fall Cultivate Harrow Fertilize Rodweed (1) Seed | |
| Continuous Winter Wheat C.08 | Alternative 2 | 2.7 |
| | Disk - fall Disk - spring Fertilize Rodweed (1) Seed | |

Whitman County - less than 15 inch rainfall

| Crop Sequences | Tillage Alternatives | Average Annual Soil Loss Estimate Tons/Acre |
|----------------|--|--|
| C.20 Est. | Alternative 3 | 6.7 |
| | Plow - fall Cultivate Harrow Fertilize Harrow Seed | |
| Grain & Fallow | Alternative 3 | |
| | Plow - fall Cultivate Harrow Fertilize Harrow Rodweed & Harrow (3) times Seed - late in fall | |

Whitman County - 15 to 19 inch rainfall

| Crop Sequences | Tillage Alternatives | Average Annual Soil Loss Estimate Tons/Acre |
|--|--|--|
| Annual Cropping | Alternative 1 | 8.1 |
| Continuous "A" SW .24 Spring Grain "B" SB .06 "B" SW .14 | Disk - fall Chisel - fall Cultivate Harrow Fertilize Seed | |
| C.14 | | |
| C.24 | Alternative 2 | 13.9 |
| | Plow - fall Cultivate Harrow Fertilize Rodweed Harrow Seed | |
| Annual Cropping | Alternative 3 | 7.5 |
| Winter Wheat 1 yr. Spring Grain 2 yrs. C.13 | Disk - fall Chisel - fall Cultivate Harrow Fertilize Seed | |
| 4-year Rotation | Alternative 1 | |
| Winter Wheat 1 yr. Spring Grain 2 yrs. Fallow 1 yr. | Disk - fall Chisel - fall Cultivate Harrow Fertilize Seed | |

Whitman County - 15 to 19 inch rainfall

| Crop Sequences | Tillage Alternatives | Average Annual Soil Loss Estimate Tons/Acre |
|--|---|--|
| 3-year Rotation | Alternative 2 | 14.5 |
| Winter Wheat 1 yr. Spring Grain 1 yr. Fallow 1 yr. | Disk - fall Chisel - fall Cultivate Harrow Fertilize Seed | |
| C.25 Est. | *Rodweed fallow (3) times | |
| Grain & Fallow | Alternative 1 | 14.5 |
| C.25 | Disk - fall Chisel - spring Cultivate Harrow Fertilize Rodweed (3) times Seed by Sept. 10 | |
| C.15 | Alternative 2 | 8.7 |
| | Plow - spring Cultivate Fertilize Harrow Rodweed (3) times Seed | |

Whitman County - 19 inch rainfall or more

| Crop Sequences | Tillage Alternatives | Average Annual Soil Loss Estimate Tons/Acre |
|---|--|--|
| Annual Cropping | Alternative 1 | 13.9 |
| Winter Wheat on Winter Wheat C.34 | Plow Harrow Fertilize Harrow Seed | |
| C.08 | Alternative 2 | 3.2 |
| | Chisel Fertilize Harrow Seed | |
| C.03 | Alternative 3 | 1.2 |
| | No-till | |
| Winter Grain & Spring Grain C.36 | Alternative 1 | 14.7 |
| | Plow Harrow Fertilize Harrow Seed | |
| Winter Grain & Spring Grain C.10 | Alternative 2 | 4.1 |
| | Chisel Fertilize Harrow Seed | |
| Spring Grain | Alternative 3 | 7.8 |
| C.19 | (Experimental use only) | |
| | Plow Cultivate Fertilize Harrow Seed | |

Whitman County - 19 inch rainfall or more

| Crop Sequences | Tillage Alternatives | Average Annual Soil Loss Estimate Tons/Acre |
|------------------------------------|---|--|
| | Alternative 3 (cont'd) | |
| Winter Grain | (Experimental) | 2.4 |
| C.06 | Fertilize Seed with No tillage | |
| C.06 | Alternative 4 No-till Disk | 2.4 |
| C.04 | Alternative 5 No-till & Springplow | 1.6 |
| Annual Cropping | Alternative 1 | 9.8 |
| Continuous Spring Grain C.24 | Plow Harrow Fertilize Harrow Seed | |
| C.14 | Alternative 2 Chisel Fertilize Harrow Seed | 5.7 |
| Grain & Peas or Lentils C.18 | Alternative 1 For peas or lentils: Plow - fall Cultivate Harrow Pack Seed | 7.8 |

Whitman County - 19 inch rainfall or more

| Cropping Sequence | Tillage Alternatives | Average Annual Soil Loss Estimate Tons/Acre |
|--------------------------------------|---|--|
| Grain and Peas or Lentils (cont.) | Alternative 1 | |
| | For wheat: | |
| | Chisel Fertilize Harrow Seed | |
| | Alternative 2 | |
| C.14 | For peas or lentils: | |
| | Disk - fall Chisel - fall Cultivate Harrow Pack Seed | |
| | For wheat: | 7.3 |
| | Disk Fertilize Harrow Seed | |
| Grain & Peas or Lentils (cont.) | Alternative 3 | 10.6 |
| | For peas or lentils: | |
| | Disk - fall Chisel - fall Cultivate Harrow Pack Seed | |
| | *For wheat: Fertilize Seed | |
| C.26 | | *Only where weeds are not expected to be problem. |

Whitman County - 19 inch rainfall or more

| Crop Sequences | Tillage Alternatives | Average Annual Soil Loss Estimate Tons/Acre |
|---|---|--|
| C.11 | Alternative 4 No-till & Chisel-Disk | 4.5 |
| Grass for Seed 4 yrs. Grain 2 yrs. | Alternative 1 For grass: Plow - fall Cultivate Harrow (2) times Pack Seed Control weeds & insects For grain: Plow - first yr. Chisel - second yr. Cultivate Fertilize Harrow Seed | 4.3 |
| C.13 | | |
| Grain 2-4 yrs. Peas or Lentils 1 yr. | Alternative 1 For peas or lentils: Disk - fall Chisel - fall Cultivate Harrow Pack Seed For grain after peas or lentils: Disk Fertilize Harrow Seed | 4.9 |
| C.12 | | |

Whitman County - 19 inch rainfall or more

| Crop Sequences | Tillage Alternatives | Average Annual Soil Loss Estimate Tons/Acre |
|--|---|--|
| Grain 2-4 yrs. Peas or Lentils 1 yr. | Alternative 1 (cont.) For grain after grain: Disk - fall Chisel - fall Cultivate Fertilize Harrow Seed | |
| C.15 | Alternative 2 For peas or lentils: Plow - fall Cultivate Harrow Pack Seed For grain after peas or lentils: Disk Fertilize Harrow Seed For grain after grain: Plow - fall Harrow Fertilize Harrow Seed | 6.1 |
| Grass & Alfalfa 2-3 yrs. Grain & lentils 3 yrs. C.08 | Alternative 1 For grass & alfalfa: Plow - fall Cultivate Harrow (2) times Pack Seed Control weeds & insects | 3.2 |

Whitman County - 19 inch rainfall or more

| Crop Sequences | Tillage Alternatives | Average Annual Soil Loss Estimate Tons/Acre |
|-----------------------|----------------------|--|
| Alternative 1 (cont.) | | |
| For grain: | | |
| Plow | | |
| Cultivate | | |
| Fertilize | | |
| Harrow | | |
| Seed | | |
| For peas or lentils: | | |
| Disk | | |
| Fertilize | | |
| Harrow | | |
| Seed | | |